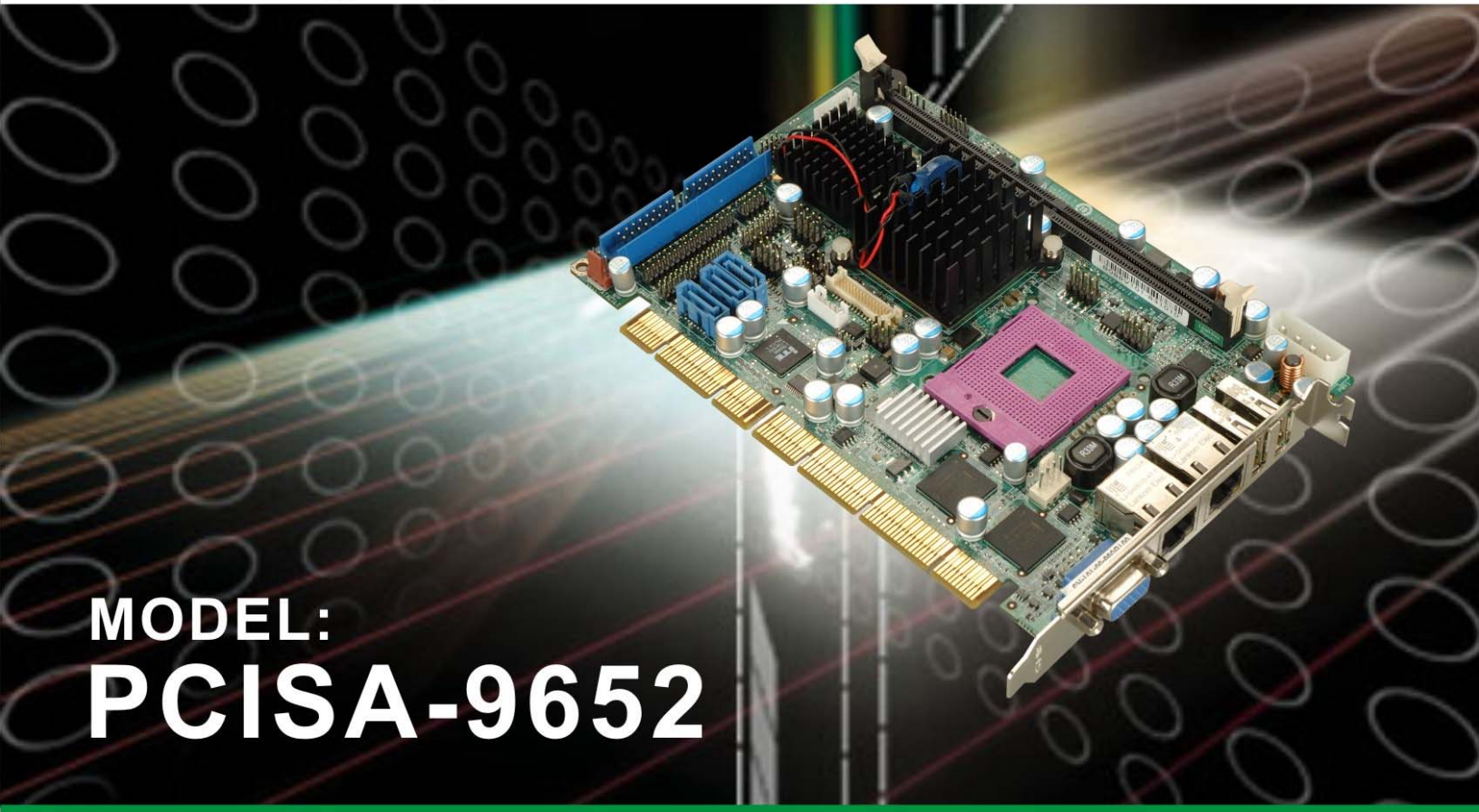
IEI Technology Corp.



MODEL:

PCISA-9652

Half-Size PCISA Socket P Intel® Core2 Duo CPU Card with VGA, LVDS, SDVO, TV-out, Dual PCIe GbE, Six USB Ports, Three SATA II Ports and CF Type II Slot

User Manual

Rev. 1.01 August 2008

RoHS Lead Free

Revision

Date	Version	Changes
2008-08	1.01	Modified part numbers of the SATA cable, SATA power cable and USB cable
2008-04	1.00	Initial Release

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Manual Conventions

WARNING!

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously. Warnings are easy to recognize. The word “warning” is written as “**WARNING**,” both capitalized and bold and is followed by text. The text is the warning message. A warning message is shown below:

WARNING:

This is an example of a warning message. Failure to adhere to warning messages may result in permanent damage to the PCISA-9652 or personal injury to the user. Please take warning messages seriously.

CAUTION!

Cautionary messages should also be heeded to help reduce the chance of losing data or damaging the PCISA-9652. Cautions are easy to recognize. The word “caution” is written as “**CAUTION**,” both capitalized and bold and is followed. The italicized text is the cautionary message. A caution message is shown below:

CAUTION:

This is an example of a caution message. Failure to adhere to cautions messages may result in permanent damage to the PCISA-9652. Please take caution messages seriously.

NOTE:

These messages inform the reader of essential but non-critical information. These messages should be read carefully as any directions or instructions contained therein can help avoid making mistakes. Notes are easy to recognize. The word “note” is written as “**NOTE**,” both capitalized and bold and is followed by text. The text is the cautionary message. A note message is shown below:

NOTE:

This is an example of a note message. Notes should always be read. Notes contain critical information about the PCISA-9652. Please take note messages seriously.

Packing List

NOTE:

If any of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the PCISA-9652 from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@iei.com.tw.

The items listed below should all be included in the PCISA-9652 package.

- 1 x PCISA-9652 CPU card
- 1 x IDE flat cable
- 1 x Mini jumper pack
- 1 x Parallel port and RS-232 cable
- 2 x SATA cables
- 1 x SATA power cable
- 1 x USB cable
- 1 x Utility CD
- 1 x Quick installation guide

Images of the above items are shown in **Chapter 3**.

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Chapter

1

Introduction

1.1 PCISA-9652 Overview

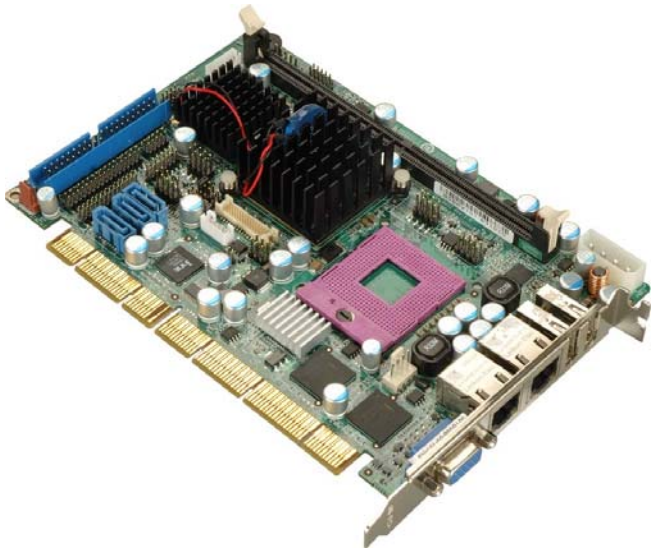

Figure 1-1: PCISA-9652 CPU Card

The PCISA-9652 half-size PCISA CPU card is a Socket P Intel® Core™2 Duo (Merom core) CPU platform. The PCISA-9652 has a maximum front side bus (FSB) frequency of 800 MHz and comes with a VGA interface and dual PCI Express (PCIe) Gigabit Ethernet (GbE). The PCISA-9652 supports up to three, second-generation serial ATA (SATA) hard disk drives (HDD) with maximum transfer rates of 3.0 Gbps and up to six USB 2.0 devices. The PCISA-9652 also has a CompactFlash® card socket for additional system storage. Multiple display support adds versatility to the system enabling system integrators and designers increased flexibility in selecting display panel options.

1.1.1 PCISA-9652 Features

Some of the PCISA-9652 features are listed below:

- Complies with RoHS
- Supports Socket P Intel® Core™2 Duo processor with Merom core
- Supports a maximum FSB speed up to 800 MHz
- Supports one 240-pin 2 GB (max.) 533/667 MHz DDR2 SDRAM DIMM
- Dual PCIe GbE connectors
- Supports three SATA II channels with transfer rates up to 3.0 Gbps

- Supports six USB 2.0 devices
- Supports HDTV-Out, 24-bit dual-channel LVDS and CRT

1.2 PCISA-9652 Board Overview

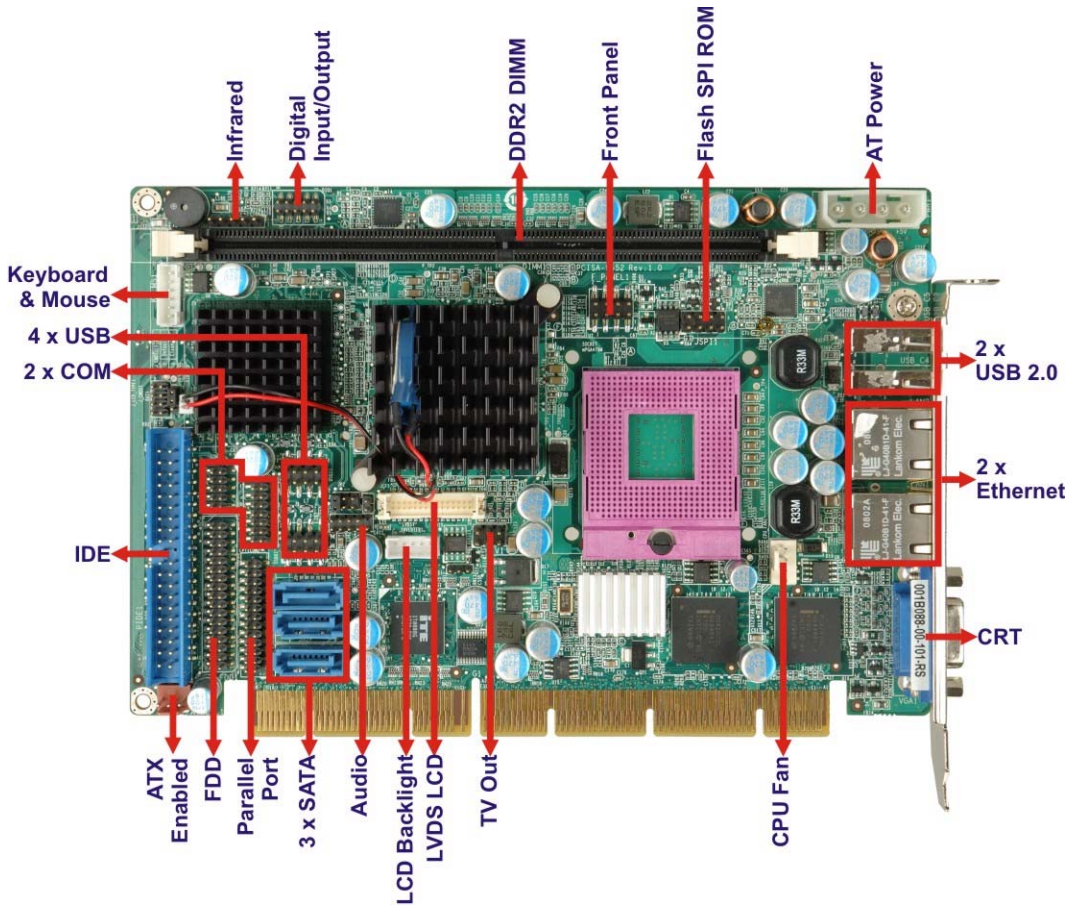

Figure 1-2: PCISA-9652 Board Overview (Front Side)

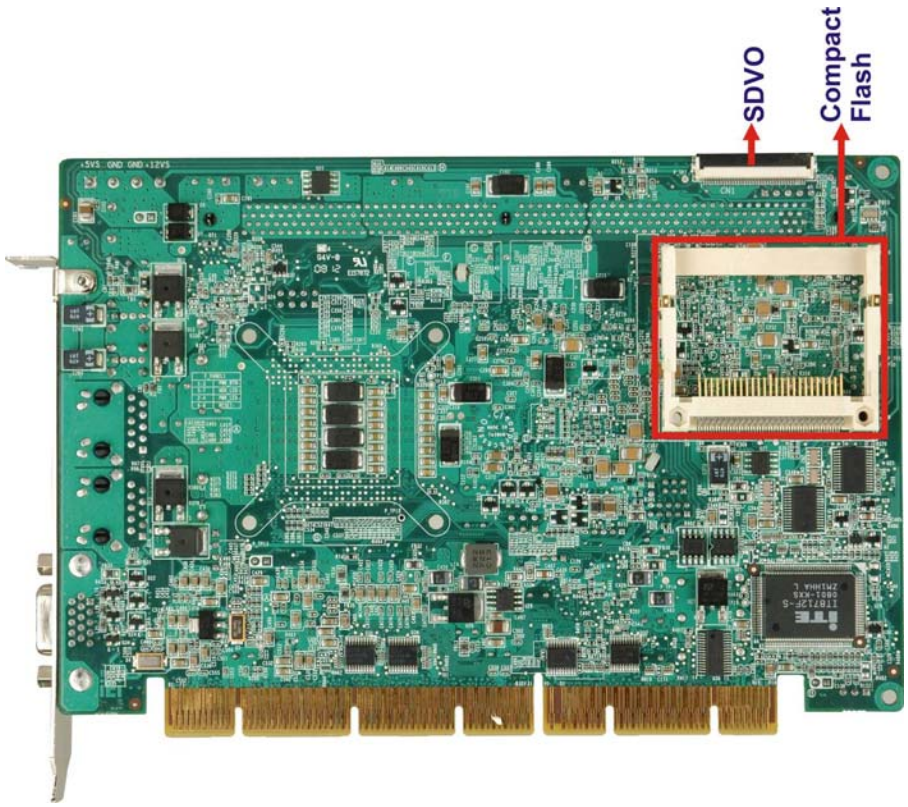

Figure 1-3: PCISA-9652 Board Overview (Solder Side)

1.2.1 PCISA-9652 Connectors

The PCISA-9652 has the following connectors on-board:

- 1 x Audio connector
- 1 x AT power connector
- 1 x ATX enable connector
- 1 x CompactFlash® card slot
- 1 x DDR2 DIMM socket
- 1 x Digital I/O connector
- 1 x Fan connector
- 1 x Flash SPI ROM connector
- 1 x Floppy disk connector
- 1 x Front panel connector
- 1 x IDE Interface connector

- 1 x Infrared interface connector
- 1 x Keyboard connector
- 1 x LCD backlight connector
- 1 x LVDS LCD connector
- 1 x Parallel port connector
- 1 x RS-232 serial port connector
- 1 x RS-232/422/485 serial port connector
- 3 x SATA II connectors
- 1 x SDVO connector
- 1 x TV out connector
- 2 x USB connectors

The PCISA-9652 has the following connectors on the board rear panel:

- 1 x CRT connector
- 2 x Ethernet connectors
- 2 x USB 2.0 ports

The PCISA-9652 has the following on-board jumpers:

- CF card setup
- Clear CMOS
- COM 2 function selection
- LCD voltage selection
- LVDS panel resolution selection

The location of these connectors on the motherboard can be seen in **Figure 1-1**. These connectors are fully described in **Chapter 3**.

1.2.2 Technical Specifications

PCISA-9652 technical specifications are listed in **Table 1-1**. Detailed descriptions of each specification can be found in **Chapter 2**.

SPECIFICATION	PCISA-9652
CPUs Supported	Socket P Intel® Core™2 Duo Merom core CPU
Chipsets	Northbridge: Intel® GME965 Southbridge: Intel® ICH8ME
Graphics Support	Intel® Graphics Media Accelerator (GMA) X3100
Display	**CRT** **HDTV:** • Up to 1080i component output • Composite output for NTSC/PAL **LVDS:** Dual-channel 24-bit LVDS
Memory	One 240-pin 2 GB (max.) 533/667 MHz dual-channel DDR2 SDRAM DIMM
Super I/O	iTE IT8712F
Serial ATA (SATA)	Three SATA II connectors with 3.0 Gbps transfer rates
HDD Interface	One IDE channel supports two Ultra ATA 100/66/33 devices
USB Interfaces	Six USB 2.0 devices supported (four internal and two external)
Serial Ports	One RS-232 (10-pin header connector) One RS-232/422/485 (14-pin header connector)
Keyboard/Mouse	One keyboard/mouse connector (6-pin header)
Infrared	One IrDA connector through the iTE IT8712F super I/O. Supports: • Serial Infrared (SIR)

	• Amplitude Shift Keyed IR (ASKIR)
Digital I/O	8-bit digital I/O, 4 input / 4 output by super I/O
Audio	Supports 7.1 channel HD audio via AC-KIT883HD audio kit
Ethernet	Dual Intel® 82573L PCIe GbE controllers
BIOS	AMI BIOS Label
Power	AT and ATX power
Power Consumption	5V @ 7.72 A, +12V @ 0.139 A (2.0 GHz Intel® Core™2 Duo T7300 with a 800 MHz FSB and a 667 MHz 1 GB DDR2 DIMM)
Operating Temperature	Minimum: 0ºC (32°F) Maximum: 60°C (140°F)
Humidity	5%~95% non condensing
Physical Dimensions	185 mm x 127.6 mm (width x length)
Weight (GW)	1.0 kg

Table 1-1: Technical Specifications

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Chapter

2

Detailed Specifications

2.1 Overview

This chapter describes the specifications and on-board features of the PCISA-9652 in detail.

2.2 Dimensions

2.2.1 Board Dimensions

The dimensions of the board are listed below:

- **Length**: 185.0 mm
- **Width**: 127.6 mm

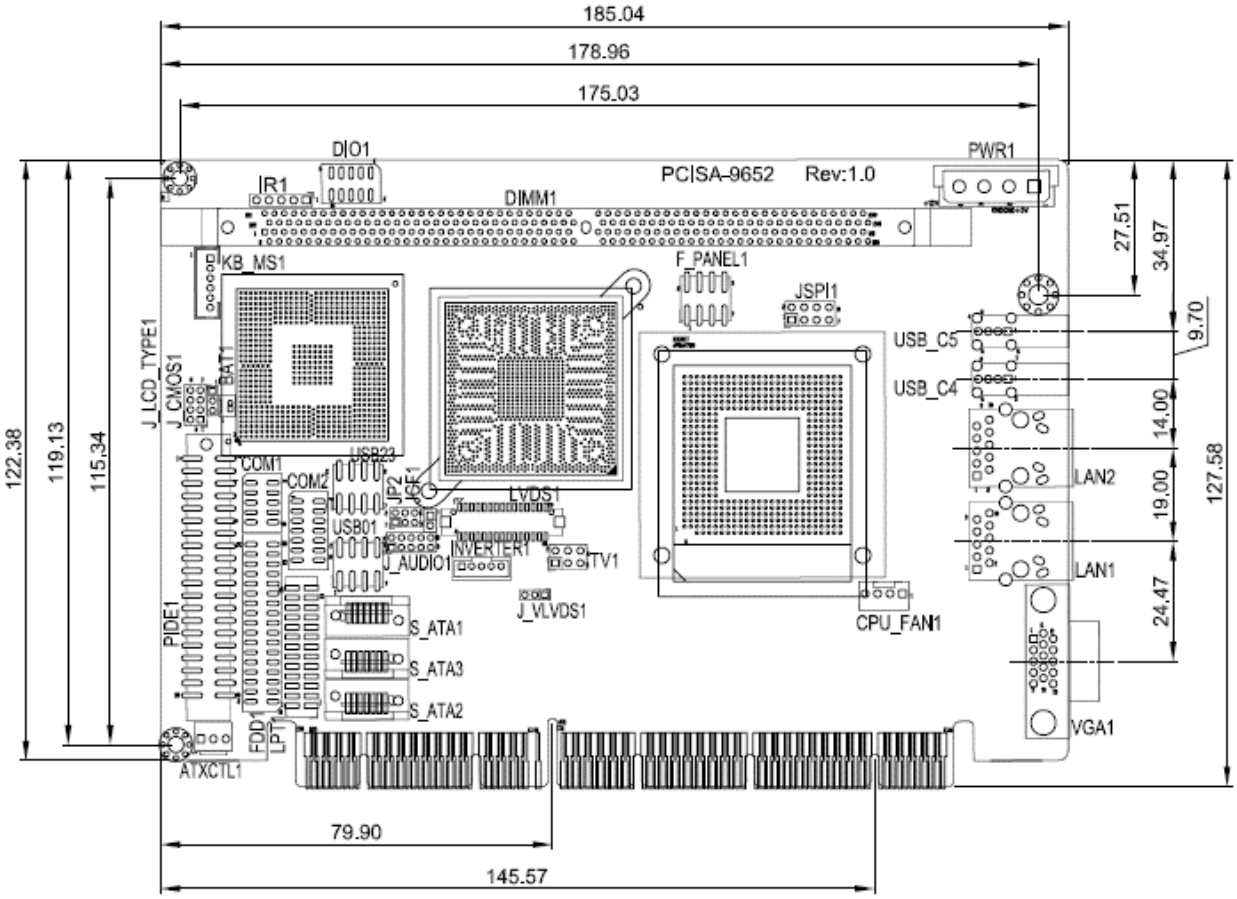


Figure 2-1: PCISA-9652 Dimensions (mm)

2.2.2 External Interface Panel Dimensions

External peripheral interface connector panel dimensions are shown in **Figure 2-2**.

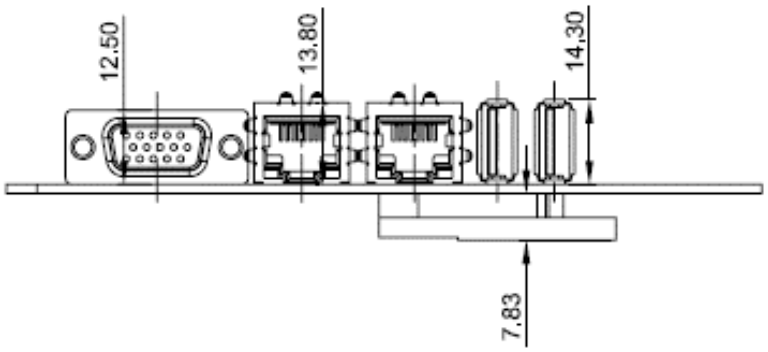


Figure 2-2: External Interface Panel Dimensions (mm)

2.3 Data Flow

The PCISA-9652 motherboard comes with an Intel® GME965 GMCH and an Intel® ICH8ME I/O Controller Hub. **Figure 2-3** shows the data flow between the system chipset, the CPU and other components installed on the motherboard.

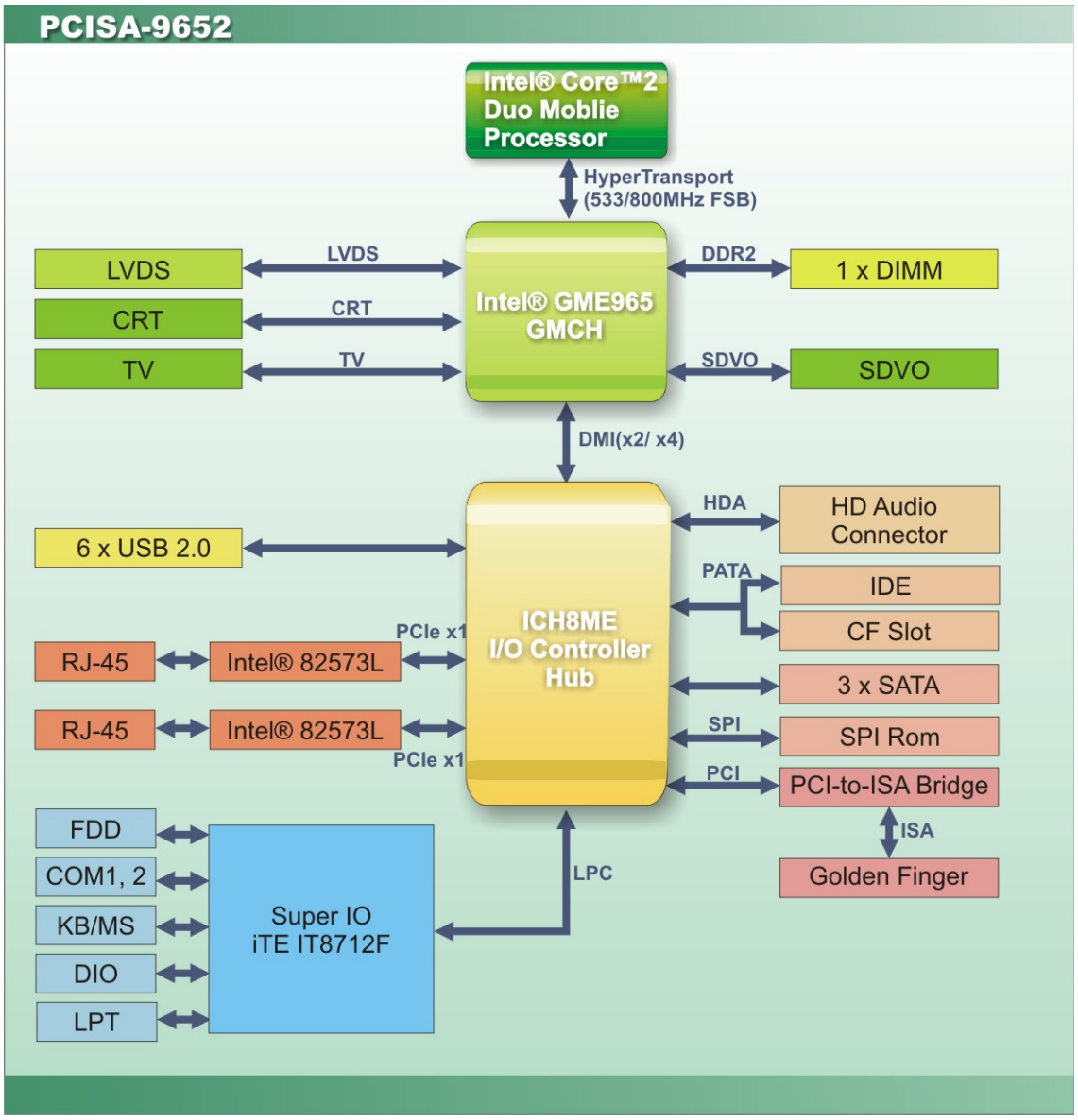


Figure 2-3: Data Flow Block Diagram

2.4 Compatible Processors

Table 2-1 lists the Intel® processors supported on the PCISA-9652. All the processors in **Table 2-1** are 65nm Socket P processors.

Processor	Max. CPU Speed	FSB Speed	Max. Cache Size
Intel® Core™2 Duo	2.60 GHz	800 MHz	4 MB
Intel® Celeron® M	2.13 GHz	533 MHz	1 MB

Table 2-1: Supported Intel® Processors

2.5 Intel® GME965 Graphics and Memory Controller Hub

2.5.1 Intel® GME965 Overview

The Intel® GME965 GMCH has the Intel® Graphics Media Accelerator X3100 (Intel® GMA 3100) to support integrated graphics. The integrated graphics and memory controller hub (GMCH) facilitates the flow of information primarily between the following four interfaces:

- Front Side Bus (FSB)
- System Memory Interface
- Graphics Interface
- Direct Media Interface (DMI)

2.5.2 Intel® GME965 Front Side Bus (FSB) Support

The Intel® GME965 GMCH supports processors with the following FSB speeds:

- 533 MHz
- 800 MHz

The Socket P, Intel® GME965 GMCH and the FSB are shown in **Figure 2-4**.

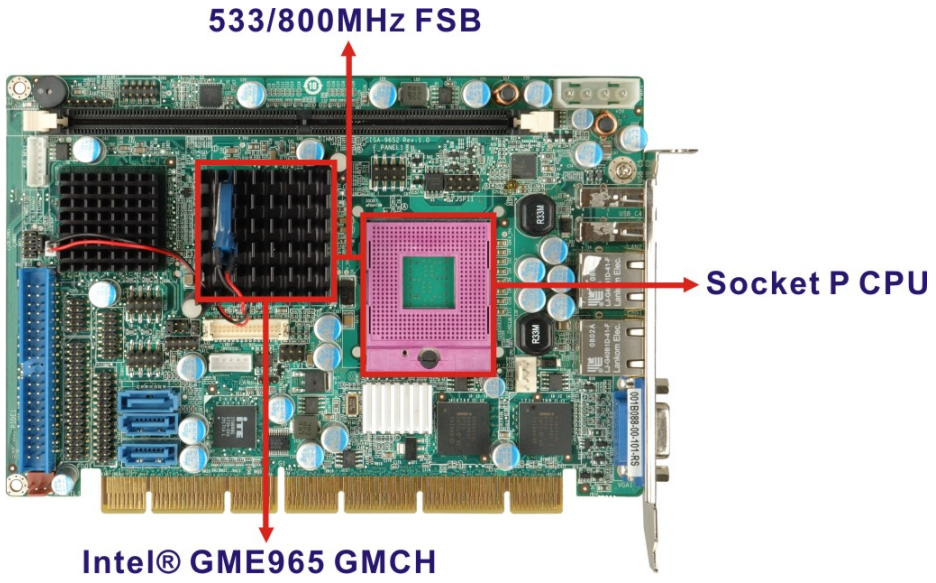


Figure 2-4: Front Side Bus (FSB)

2.5.3 Intel® GME965 Memory Support

WARNING:

Only DDR2 memory module can be installed on the PCISA-9652. Do not install DDR memory modules. If a DDR memory module is installed on the PCISA-9652, the PCISA-9652 may be irreparably damaged.

The Intel® GME965 GMCH on the PCISA-9652 supports one 240-pin DDR2 DIMM with the following features:

- One 240-pin DIMM
- DDR2 only (**DO NOT** install a DDR DIMM)
- Single-channel
- Capacities of 256 MB, 512 MB, 1 GB or 2 GB
- Transfer speeds of 533 MHz or 667 MHz
- 64-bit wide channel

The memory sockets are shown in **Figure 2-5**.

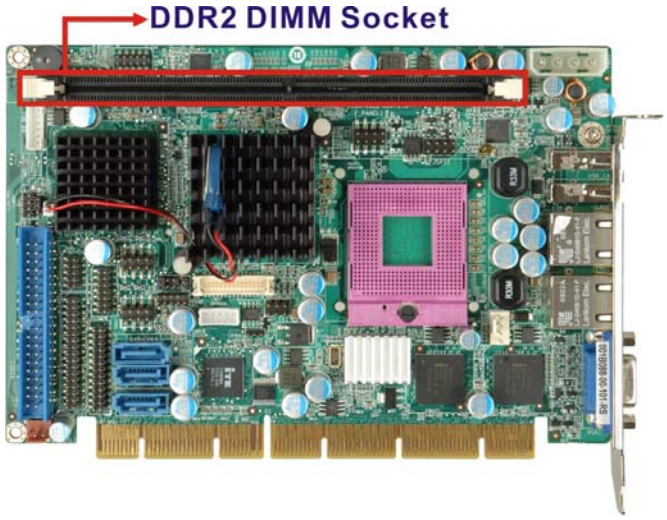
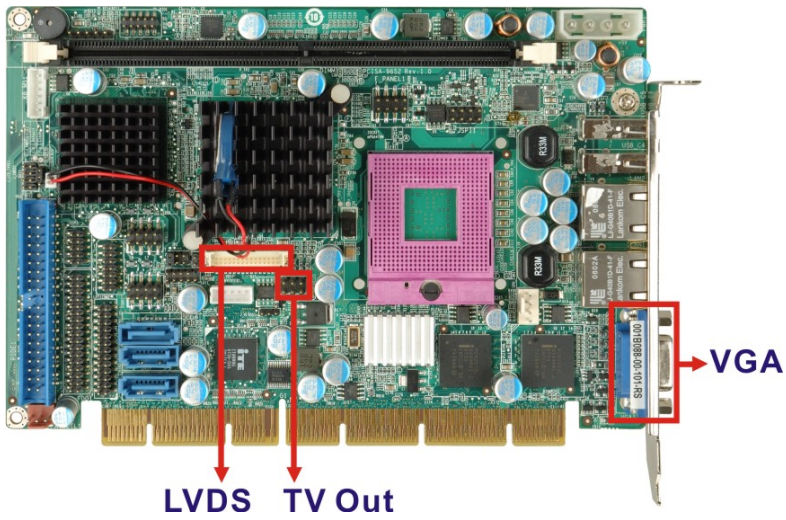


Figure 2-5: 240-pin DDR2 DIMM Socket

2.5.4 Intel® GME965 Integrated Graphics

The Intel® GME965 GMCH has a mobile Intel® Graphics Media Accelerator X3100 integrated graphics engine that supports the following display devices:

- Analog CRT
- LVDS
- Analog TV-Out
- SDVO



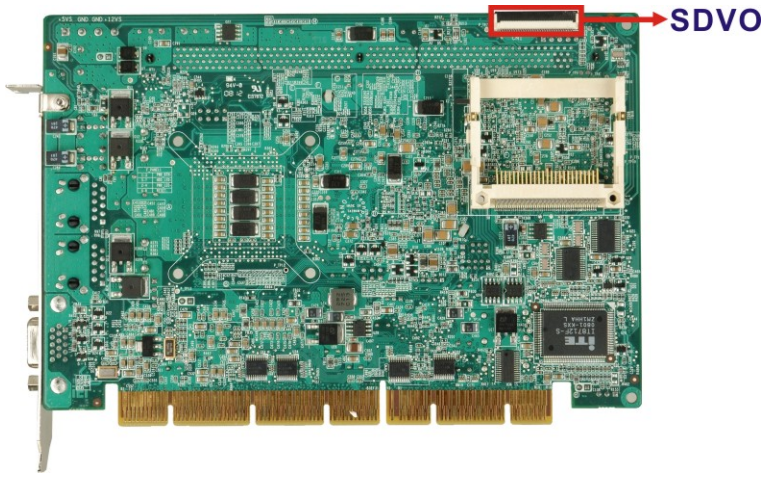


Figure 2-6: Integrated Graphics Interfaces

2.5.4.1 Intel® GME965 Analog CRT Support

A DB-15 VGA connector on the external peripheral interface connector panel is interfaced to the Intel® GME965 graphics engine. The Intel® GME965 internal graphics engine, with an integrated 300 MHz RAMDAC and hot plug CRT support, supports analog CRT monitors up to QXGA (2048 x 1536).

2.5.4.2 Intel® GME965 LVDS Support

A 30-pin LVDS crimp connector is interfaced to the Intel® GME965 graphics engine. The Intel® GME965 internal graphics engine supports LVDS displays with the following features:

- 18-bit/24-bit 25 MHz to 112 MHz single-channel or dual-channel LVDS screens
- TFT panel type supported
- Panel Fitting, Panning and Center mode supported
- SPWG v3.5 specification compliant

2.5.4.3 Intel® GME965 TV Out Support

An internal 6-pin header TV output connector is interfaced to the Intel® GME965 graphics engine. The Intel® GME965 internal graphics engine has the following TV output features:

- Three integrated 10-bit DACs
- Overscaling
- NTSC and PAL formats supported
- Supports Component, S-Video, TV D connector or Composite output connectivity
- Supports with the following resolutions:
  - SDTV 480i
  - EDTV 480p
  - HDTV 720p, 1080i
  - True HDTV 1080p

2.5.4.4 Intel® GME965 SDVO Support

The Intel® GME965 internal graphics engine has the following SDVO output features:

- Concurrent operation of PCIe x 1 with SDVO
- One SDVO port supported
  - SDVO is muxed onto the PCIe pins
  - DVI 1.0 support for external digital monitor
  - Only Downstream HDCP support
  - Supports TV and DVD formats
  - Display hot plug support
- Supports multiple external SDVO components, including HDMI, DVI, LVDS, Analog TV-out, Analog CRT.

2.5.5 Intel® GME965 Direct Management Interface (DMI)

The Direct Media Interface (DMI) is the communication bus between the Intel® GME965 GMCH and the ICH8ME I/O controller hub (ICH). The DMI is a high-speed interface that integrates advanced priority-based servicing and allows for concurrent traffic and true isochronous transfer capabilities. The DMI is shown in **Figure 2-7**.

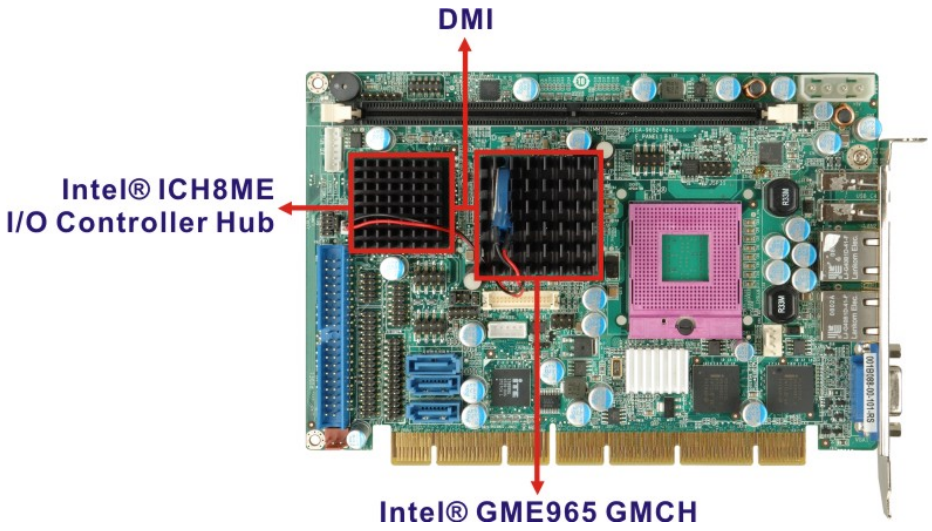


Figure 2-7: DMI Chip-to-Chip Connection

Features of the Intel® GME965 DMI are listed below:

- 2GB/s (1GB/s in each direction) bus speed
- Configurable as x2 or x4 DMI lanes
- 32-bit downstream address

2.6 Intel® ICH8ME I/O Controller Hub

2.6.1 Intel® ICH8ME Overview

The Intel® ICH8ME I/O Controller Hub (ICH) is connected to the Intel® GME965 GMCH through the chip-to-chip Direct Media Interface (DMI). Some of the features of the Intel® ICH8ME are listed below.

- Complies with PCI Express Base Specification, Revision 1.1
- Complies with PCI Local Bus Specification, Revision 2.3 and supports 33 MHz PCI operations
- Supports ACPI Power Management Logic
- Contains:
  - Enhanced DMA controller
  - Interrupt controller
  - Timer functions
- Integrated SATA host controller with DMA operations interfaced to three SATA

connectors on the PCISA-9652

- Supports the six USB 2.0 devices on the PCISA-9652 with four UHCI controllers and one EHCI controller
- Complies with System Management Bus (SMBus) Specification, Version 2.0
- Supports Intel® High Definition Audio
- Contains Low Pin Count (LPC) interface
- Supports Firmware Hub (FWH) interface
- Serial Peripheral Interface (SPI) support

2.6.2 Intel® ICH8ME HD Audio Controller

The Intel® High Definition Audio controller integrated into the ICH8ME is connected to the on-board audio connector. The audio connector is connected to an optional 7.1 channel (ALC-KIT883HD) High Definition Audio codec. The audio controllers support up to six PCM audio output channels. Complete surround sound requires six-channel audio consisting of:

- Front left
- Front right
- Back left
- Back right
- Center
- Subwoofer

In addition to the basic surround sound features, the High Definition audio kit also features multi-streaming functionality.

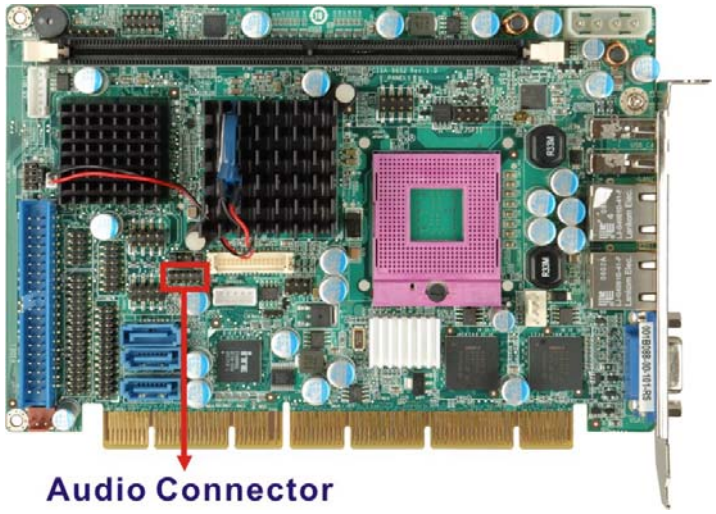


Figure 2-8: Audio Connector

2.6.3 Intel® ICH8ME IDE Interface

The integrated IDE interface on the ICH8ME supports two IDE hard disks and ATAPI devices. PIO IDE transfers up to 16 MB/s and Ultra ATA transfers of 100MB/s. The integrated IDE interface is able to support the following IDE HDDs:

- **Ultra ATA/100**, with data transfer rates up to 100 MB/s
- **Ultra ATA/66**, with data transfer rates up to 66 MB/s
- **Ultra ATA/33**, with data transfer rates up to 33 MB/s

Specification	Ultra ATA/100	Ultra ATA/66	Ultra ATA/33
IDE devices	2	2	2
PIO Mode	0 – 4	0 – 4	0 – 4
PIO Max Transfer Rate	16.6 MB/s	16.6 MB/s	16.6 MB/s
DMA/UDMA designation	UDMA 3 - 4	UDMA 3 – 4	UDMA 2
DMA/UDMA Max Transfer	100 MB/s	66 MB/s	33 MB/s
Controller Interface	5V	5V	5V

Table 2-2: Supported HDD Specifications

2.6.4 Intel® ICH8ME Low Pin Count (LPC) Interface

The ICH8ME LPC interface complies with the LPC 1.1 specifications. The LPC bus from the ICH7 is connected to the ITE IT8712F Super I/O chipset. For more detailed information please refer to **Section 2.8.2**.

2.6.5 Intel® ICH8ME PCI Interface

The PCI bus on the ICH8ME is compliant with the PCI Revision 2.3 implementation. Some of the features of the PCI interface are listed below.

- PCI Revision 2.3 compliant
- 33 MHz
- 5V tolerant PCI signals (except PME#)
- Integrated PCI arbiter supports up to seven PCI bus masters

2.6.5.1 ITE IT8888G PCI-to-ISA Bridge

The ICH8ME is interfaced to an ITE IT8888G PCI-to-ISA bridge through the PCI bus. The ITE IT8888G PCI-to-ISA bridge is then connected to an ISA edge connector on the bottom of the PCISA-9652 thereby enabling legacy ISA card expansion on the backplane. The PCI to ISA bridge is shown in **Figure 2-9**.

NOTE:

The ICH8ME integrated in PCISA-9652 supports non-DMA ISA devices.

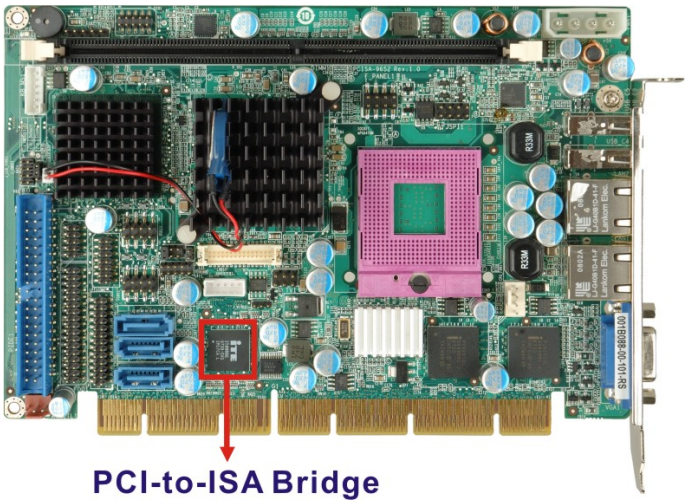


Figure 2-9: PCI-to-ISA Bridge

The ITE IT8888G has a PCI specification v2.1 compliant 32-bit PCI bus interface and supports both PCI Bus master and slave. The PCI interface supports both programmable positive and full subtractive decoding schemes. Some of the features of the IT8888G PCI to ISA bridge are listed below.

- PCI Interface
- Programmable PCI Address Decoders
- PC/PCI DMA Controller
- Distributed DMA Controller
- ISA Interface
- SM Bus
- 1 analog line-level mono output: MONO_OUT
- Power-on Serial Bus Configuration
- Serial IRQ
- Versatile power-on strapping options
- Supports NOGO function
- Single 33 MHz Clock Input
- +3.3V PCI I/F with +5V tolerant I/O buffers
- +5V ISA I/F and core Power Supply

2.6.6 Intel® ICH8ME PCIe x1 Bus

The Intel® ICH8ME GMCH has six PCIe x1 lanes. Two of the six PCIe lanes are implemented on the PCISA-9652, including:

- Two PCIe x1 lanes are connected to two Intel® 82573L GbE controllers

For more detailed information, please refer to **Section 2.7**.

2.6.7 Intel® ICH8ME Real Time Clock

256 bytes of battery backed RAM is provided by the Motorola MC146818A real time clock (RTC) integrated into the ICH8ME. The RTC operates on a 3V battery and 32.768KHz crystal. The RTC keeps track of the time and stores system data even when the system is turned off.

2.6.8 Intel® ICH8ME SATA Controller

The integrated SATA controller on the ICH8ME supports three SATA II drives on the PCISA-9652 with independent DMA operations. SATA controller specifications are listed below.

- Supports three SATA II drives
- Supports 3.0 Gbps data transfer speeds
- Supports Serial ATA Specification, Revision 1.0a

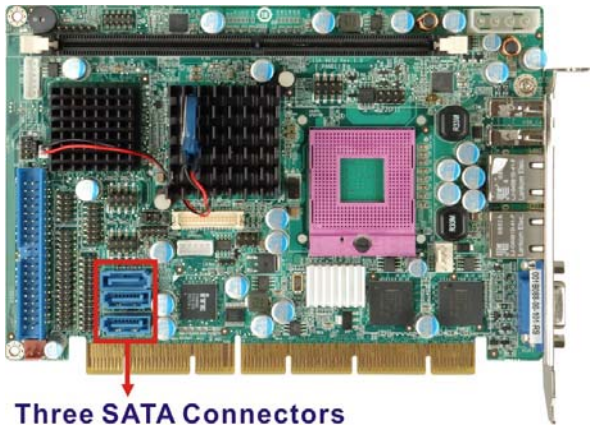


Figure 2-10: SATA Drive Connectors

2.6.9 Intel® ICH8ME Serial Peripheral Interface (SPI) BIOS

The 4-pin SPI is connected to an SPI BIOS chip. A licensed copy of AMI BIOS is preinstalled on the SPI BIOS chip. A master-slave protocol is used for communication on the SPI bus. The slave is connected to the Intel® ICH8ME and is implemented as a tri-state bus.

2.6.10 Intel® ICH8ME USB Controller

Up to eight high-speed, full-speed or low-speed USB devices are supported by the ICH8ME on the PCISA-9652. High-speed USB 2.0, with data transfers of up to 480MB/s, is enabled with the ICH8ME integrated Enhanced Host Controller Interface (EHCI) compliant host controller. USB full-speed and low-speed signaling is supported by the ICH8ME integrated Universal Host Controller Interface (UHCI) controllers.

Six of the eight USB ports implemented on the PCISA-9652 are connected to two internal connectors and two external connectors. See **Figure 2-11**.

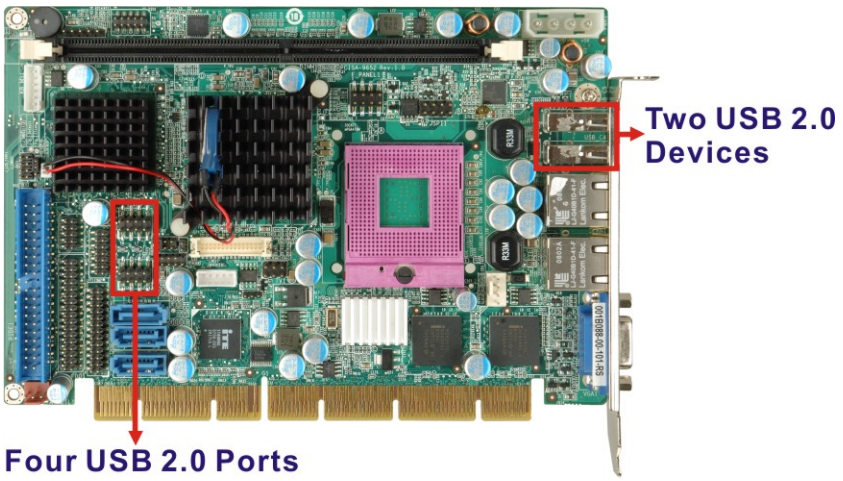


Figure 2-11: Onboard USB Implementation

2.7 PCIe Bus Components

2.7.1 PCIe Bus Overview

The PCIe bus is connected to components listed below:

- Two PCIe x1 lanes are connected to two Intel® PCIe GbE connectors

2.7.2 Intel® 82573L PCIe GbE Controller

Two RJ-45 Ethernet LAN connectors are interfaced directly to two Intel® 82573L PCIe GbE controllers. The Intel® 82573L PCIe GbE controller is a compact, single-port integrated physical layer (PHY) device with its own Memory Access Controller (MAC) and interfaced to the Intel® ICH8ME Southbridge through a PCIe x1 lane. The Intel® 82573L GbE controllers are shown in **Figure 2-12** below.

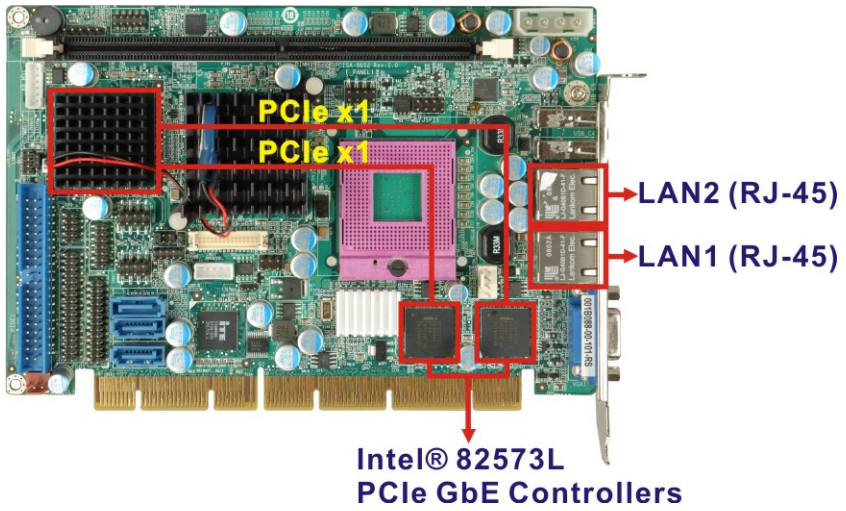


Figure 2-12: Intel® 82573L PCIe GbE Controllers

Some of the features of the Intel® 82573L are listed below:

- 2 Gbps peak bandwidth per direction
- PCI Express Rev 1.0a specification
- High bandwidth density per pin
- Wide,pipelined internal data path architecture
- Optimized transmit (Tx) and receive (Rx) queues
- 32 KB configurable Rx and Tx first-in/first-out (FIFO)
- IEEE 802.3x*-compliant flow-control support with software controllable pause times and threshold values
- Programmable host memory Rx buffers (256 B-16 KB)
- Descriptor ring management hardware for Tx and Rx

- Mechanism for reducing interrupts from Tx/Rx operations
- Integrated PHY for 10/100/1000 Mbps (full- and half-duplex)
- IEEE 802.3ab* auto-negotiation support
- IEEE 802.3ab PHY compliance and compatibility
- Tx/Rx IP,TCP,and UDP checksum offloading
- Tx TCP segmentation
- IEEE 802.1q* Virtual Local Area Network (VLAN) support with VLAN tag insertion, stripping, and packet filtering for up to 4096 VLAN tags
- Boot ROM Preboot eXecution Environment (PXE) Flash interface support
- SDG 3.0,WfM 3.0 and PC2001 compliant
- Wake on LAN support

2.8 LPC Bus Components

2.8.1 LPC Bus Overview

The LPC bus is connected to components listed below:

- Super I/O chipset

2.8.2 Super I/O chipset

The iTE IT8712F Super I/O chipset is connected to the ICH8ME through the LPC bus. iTE IT8712F Super I/O chipset is shown in **Figure 2-13** below.

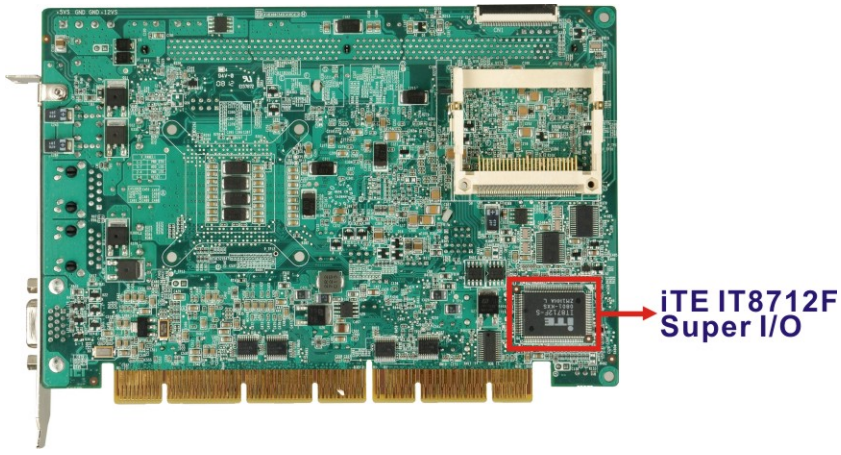


Figure 2-13: iTE IT8712F Super I/O

The iTE IT8712F is an LPC interface-based Super I/O device that comes with Environment Controller integration. Some of the features of the iTE IT8712F chipset are listed below:

- LPC Interface
- PC98/99/2001, ACPI and LANDesk Compliant
- Enhanced Hardware Monitor
- Fan Speed Controller
- SmartGuardian Controller
- Single +5V Power Supply
- Two 16C550 UARTs for serial port control
- Keyboard Controller
- Watchdog Timer
- Serial IRQ Support
- Vbat & Vcch Support
- Single +5V Power Supply

Some of the Super I/O features are described in more detail below:

2.8.2.1 Super I/O LPC Interface

The LPC interface on the Super I/O complies with the Intel® Low Pin Count Specification Rev. 1.0. The LPC interface supports both LDRQ# and SERIRQ protocols as well as PCI PME# interfaces.

2.8.2.2 Super I/O 16C550 UARTs

The onboard Super I/O has two integrated 16C550 UARTs that can support the following:

- Two standard serial ports (COM1 and COM2)
- IrDa 1.0 and ASKIR protocols

2.8.2.3 Super I/O Enhanced Hardware Monitor

The Super I/O Enhanced Hardware Monitor monitors three thermal inputs, VBAT internally, and eight voltage monitor inputs. These hardware parameters are reported in the BIOS and can be read from the BIOS Hardware Health Configuration menu.

2.8.2.4 Super I/O Fan Speed Controller

The Super I/O fan speed controller enables the system to monitor the speed of the fan. One of the pins on the fan connector is reserved for fan speed detection and interfaced to the fan speed controller on the Super I/O. The fan speed is then reported in the BIOS.

2.8.2.5 Super I/O GPIO Ports

The Super I/O has 38 programmable GPIO pins of which 8 are implemented on the PCISA-9652. The GPIO connector has 8 programmable bits, 4-bit input and 4-bit output.

2.8.2.6 Super I/O Infrared

The Super I/O has dedicated infrared (IrDA) pins that are interfaced to an IrDA connector. The IrDA connector is compatible with the following standards:

- ASKIR
- SIR

2.8.2.7 Super I/O Keyboard Controller

The Super I/O keyboard controller can execute the 8042 instruction set. Some of the keyboard controller features are listed below:

- The 8042 instruction is compatible with a PS/2 keyboard and PS/2 mouse
- Gate A20 and Keyboard reset output
- Supports multiple keyboard power on events
- Supports mouse double-click and/or mouse move power on events

2.8.2.8 Super I/O Parallel Port

The Super I/O parallel port (LPT) is compatible with the following LPT specifications.

- Bi-directional SPP compatible
- EPP V. 1.7 and V. 1.9 compatible
- Extended Parallel Port (EPP) mode supported. Compatible with IEEE 1284 specifications
- Enhanced printer port back-drive current protection

The parallel port controller is connected to an on-board LPT connector on the PCISA-9652.

2.8.2.9 Super I/O Floppy Disk Drive (FDD) Controller

The Super I/O FDD controller is compatible with the following specifications.

- FDD anti-virus functions with software write protect and FDD write enable signal
- Supports 3.5-inch or 5.25-inch FDD
- Compatible with industry standard 82077
- Supported capacities:
  - 360K
  - 720K
  - 1.2M
  - 1.44M
  - 2.88M
- Supported transfer rates
  - 250Kbps
  - 300Kbps
  - 500Kbps
  - 1Mbps
  - 2Mbps
- 3-mode FDD drives supported

The FDD controller is interfaced to a FDD connector on the PCISA-9652.

2.9 Environmental and Power Specifications

2.9.1 System Monitoring

Three thermal inputs on the PCISA-9652 Super I/O Enhanced Hardware Monitor monitor the following temperatures:

- CPU temperature
- PWM temperature
- System temperature

Eight voltage inputs on the PCISA-9652 Super I/O Enhanced Hardware Monitor monitor the following voltages:

- CPU Core
- +1.8V
- +3.30V
- +5.00V
- +12.0V
- +1.05V
- +1.5V
- +1.25V
- VBAT

The PCISA-9652 Super I/O Enhanced Hardware Monitor also monitors the following fan speed:

- CPU Fan speed

The values for the above environmental parameters are all recorded in the BIOS Hardware Health Configuration menu.

2.9.2 Operating Temperature and Temperature Control

The maximum and minimum operating temperatures for the PCISA-9652 are listed below.

- Minimum Operating Temperature: 0ºC (32°F)
- Maximum Operating Temperature: 60°C (140°F)

A cooling fan and heat sink must be installed on the CPU. Thermal paste must be smeared on the lower side of the heat sink before it is mounted on the CPU. Heat sinks are also mounted on the GMCH and ICH chipsets to ensure the operating temperature of these chips remain low.

2.9.3 Power Consumption

Table 2-3 shows the power consumption parameters for the PCISA-9652 running with a 2.0GHz Intel® Core™2 Duo T7300 with a 800 MHz FSB and a 667 MHz 1 GB DDR2 DIMM,

Voltage	Current
+5V	7.72 A
+12V	0.139 A

Table 2-3: Power Consumption

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Chapter

3

Unpacking

3.1 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the PCISA-9652 may result in permanent damage to the PCISA-9652 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the PCISA-9652. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the PCISA-9652, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding***: Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring the PCISA-9652, place it on an antic-static pad. This reduces the possibility of ESD damaging the PCISA-9652.
- ***Only handle the edges of the PCB***: When handling the PCB, hold the PCB by the edges.

3.2 Unpacking

3.2.1 Unpacking Precautions

When the PCISA-9652 is unpacked, please do the following:

- Follow the anti-static precautions outlined in **Section 3.1**.
- Make sure the packing box is facing upwards so the PCISA-9652 does not fall out of the box.
- Make sure all the components shown in **Section 3.3** are present.

3.3 Unpacking Checklist

NOTE:

If some of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the PCISA-9652 from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@iei.com.tw.

3.3.1 Package Contents

The PCISA-9652 is shipped with the following components:

Quantity	Item and Part Number	Image
1	PCISA-9652 CPU card	
1	Parallel port and RS-232 cable (**P/N**:19800-000027-RS)	
1	IDE cable (**P/N**: 32200-000052-RS)	
2	SATA cables (**P/N**: 32000-062800-RS)	
1	SATA power cable (**P/N**: 32100-088600-RS)	

1	Mini jumper pack	
1	Quick Installation Guide	
1	Dual port USB cable (**P/N**: CB-USB02-RS)	
1	Utility CD	

Table 3-1: Package List Contents

3.3.2 Optional Items

NOTE:

The items listed in this section are optional items that must be ordered separately. Please contact your PCISA-9652 vendor, distributor or reseller for more information or, contact IEI directly by sending an email to sales@iei.com.tw.

The following optional items are available for the PCISA-9652.

Quantity	Item and Part Number	Image
1	7.1 Channel HD audio kit with Realtek ALC883 (**P/N**: AC-KIT883HD-R10)	

Quantity	Item and Part Number	Image
1	CPU Cooler (**P/N**: CF-479B-RS)	
1	FDD cable (**P/N**: 32200-000058-RS)	
1	KB/MS cable with bracket (**P/N**: 19800-000075-RS)	
1	HDTV cable set with S-Video/Composite/Component interfaces (**P/N**: HDTVCABLESET-01)	
1	RS-232/422/485 cable (**P/N**: 32200-000077-RS)	

Table 3-2: Optional Items

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Chapter

4

Connectors and Jumpers

4.1 Peripheral Interface Connectors

Section 4.1.1 shows peripheral interface connector locations. **Section 4.1.2** lists all the peripheral interface connectors seen in **Section 4.1.1**.

4.1.1 PCISA-9652 Layout

Figure 4-1 shows the on-board peripheral connectors, backplane peripheral connectors and on-board jumpers.

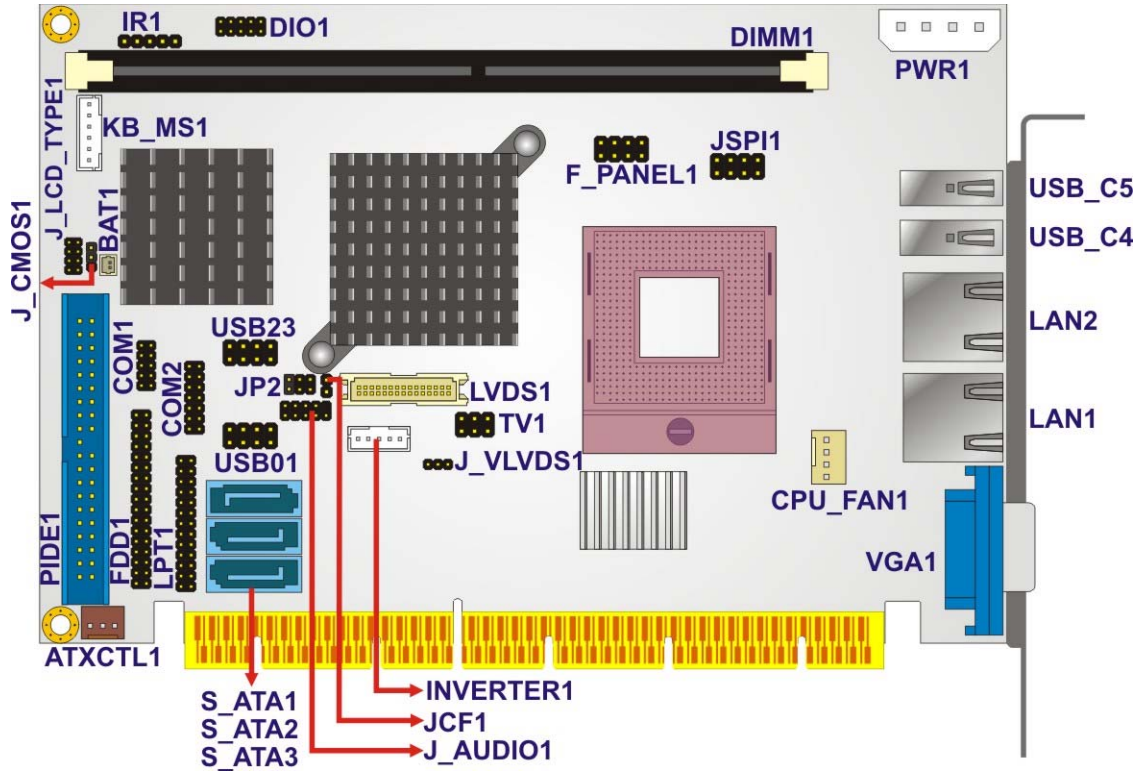


Figure 4-1: Connector and Jumper Locations (Front Side)

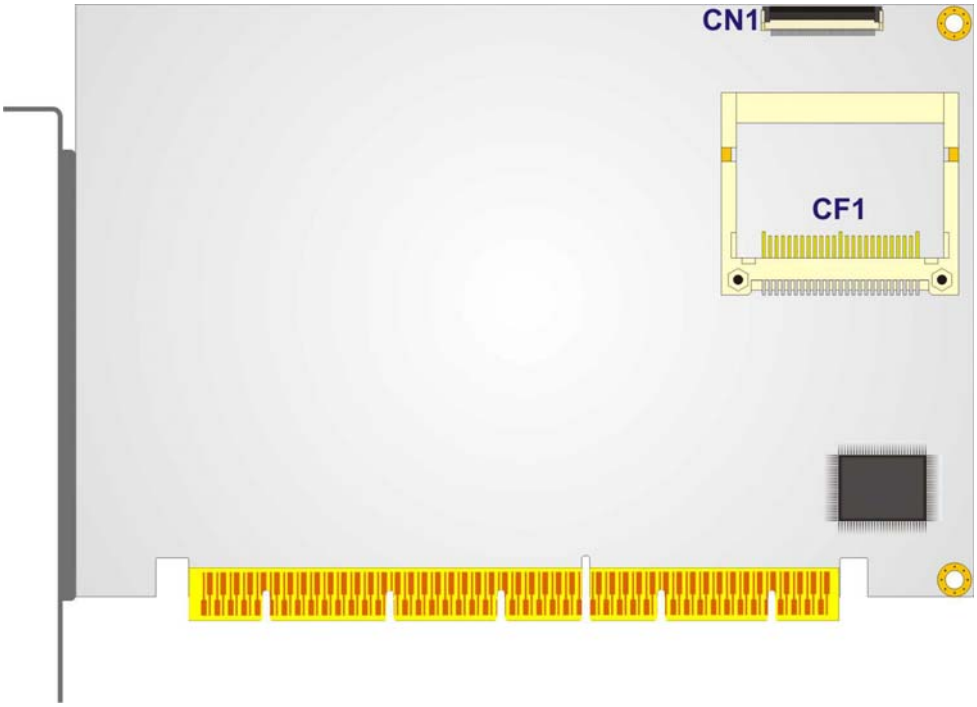


Figure 4-2: Connector and Jumper Locations (Solder Side)

4.1.2 Peripheral Interface Connectors

Table 4-1 shows a list of the peripheral interface connectors on the PCISA-9652. Detailed descriptions of these connectors can be found in **Section 4.2**.

Connector	Type	Label
AT power connector	4-pin connector	PWR1
ATX enable connector	3-pin wafer	ATXCTL1
Audio connector	10-pin header	J_AUDIO1
CompactFlash® card slot	50-pin slot	CF1
DDR2 DIMM socket	240-pin slot	DIMM1
Digital Input/Output connector	10-pin header	DIO1
Fan connector, CPU	4-pin wafer connector	CPU_FAN1

FDD connector	34-pin header	FDD1
Flash SPI ROM connector	8-pin header	JSPI1
Front panel connector	8-pin header	F_PANEL1
IDE Interface connector	40-pin box header	PIDE1
Infrared interface connector	5-pin header	IR1
Keyboard connector	6-pin wafer	KB_MS1
LCD backlight connector	5-pin wafer connector	INVERTER1
LVDS LCD connector	30-pin crimp connector	LVDS1
Parallel port connector	26-pin header	LPT1
SATA drive connector (1)	7-pin SATA connector	S_ATA1
SATA drive connector (2)	7-pin SATA connector	S_ATA2
SATA drive connector (3)	7-pin SATA connector	S_ATA3
SDVO connector	47-pin connector	CN1
Serial port connector	10-pin header	COM1
Serial port connector	14-pin header	COM2
TV out connector	6-pin header	TV1
USB connector (1)	8-pin header	USB01
USB connector (2)	8-pin header	USB23

Table 4-1: Peripheral Interface Connectors

4.1.3 Rear Panel Connectors

Table 4-2 lists the rear panel connectors on the PCISA-9652. Detailed descriptions of these connectors can be found in **Section 4.3**.

Connector	Type	Label
CRT connector	15-pin female connector	VGA1
Ethernet connector (1)	RJ-45 connector	LAN1
Ethernet connector (2)	RJ-45 connector	LAN2
USB 2.0 port (1)	USB port connector	USB_C4
USB 2.0 port (2)	USB port connector	USB_C5

Table 4-2: Rear Panel Connectors

4.2 Internal Peripheral Connectors

Internal peripheral connectors are found on the motherboard and are only accessible when the motherboard is outside of the chassis. This section has complete descriptions of all the internal, peripheral connectors on the PCISA-9652.

4.2.1 AT Power Connector

CN Label: **PWR1**

CN Type: 4-pin connector (1x4)

CN Location: See **Figure 4-3**

CN Pinouts: See **Table 4-3**

The 4-pin AT power connector is connected to an AT power supply.

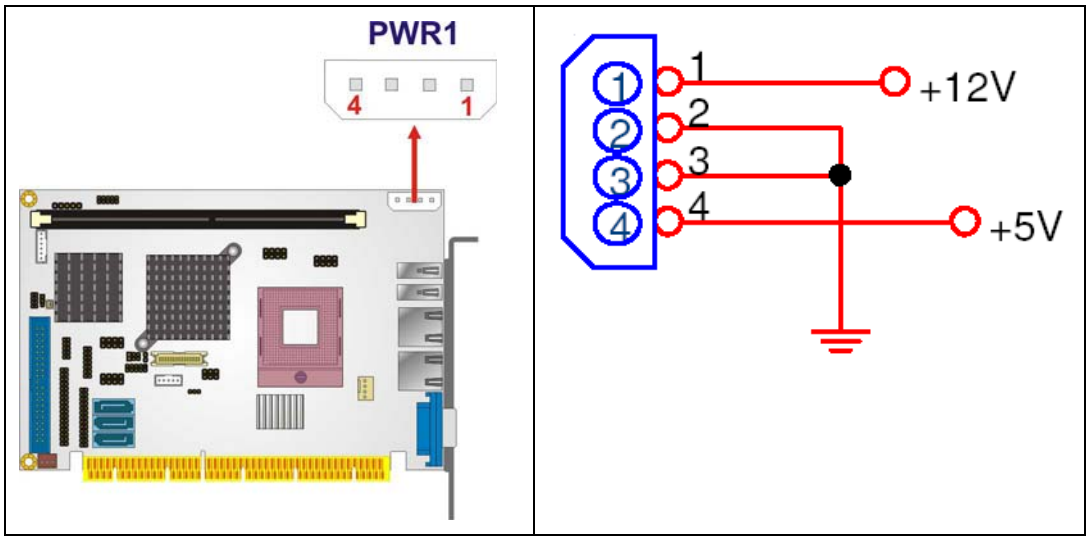


Figure 4-3: AT Power Connector Location

PIN NO.	DESCRIPTION
1	+12V
2	GND
3	GND
4	+5V

Table 4-3: AT Power Connector Pinouts

4.2.2 ATX Power Supply Enable Connector

CN Label: **ATXCTL1**

CN Type: 3-pin wafer (1x3)

CN Location: See **Figure 4-4**

CN Pinouts: See **Table 4-4**

The ATX power supply enable connector enables the PCISA-9652 to be connected to an ATX power supply.

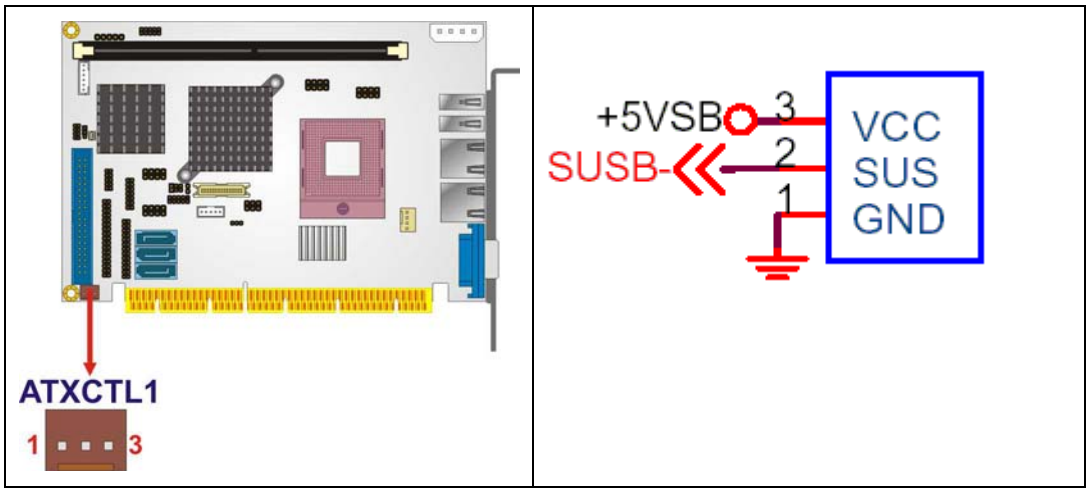


Figure 4-4: ATX Power Supply Enable Connector Location

PIN NO.	DESCRIPTION
1	GND
2	PS-ON
3	+5V Standby

Table 4-4: ATX Power Supply Enable Connector Pinouts

4.2.3 Audio Connector

CN Label: **J_AUDIO1**

CN Type: 10-pin header (2x5)

CN Location: See **Figure 4-5**

CN Pinouts: See **Table 4-5**

The audio connector connects to the optional audio kit to provide 7.1 channel HD audio to the system.

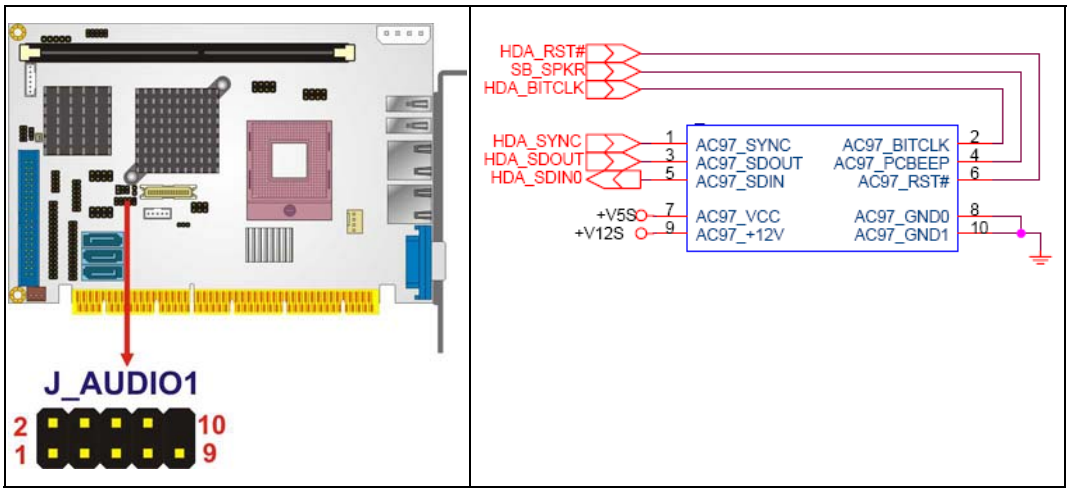


Figure 4-5: Audio Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	HDA_SYNC	2	HDA_BITCLK
3	HDA_SDOUT	4	SB_SPKR
5	HDA_SDIN0	6	HDA_RST#
7	VCC	8	GND
9	+12V	10	GND

Table 4-5: Audio Connector Pinouts

4.2.4 CompactFlash® Socket

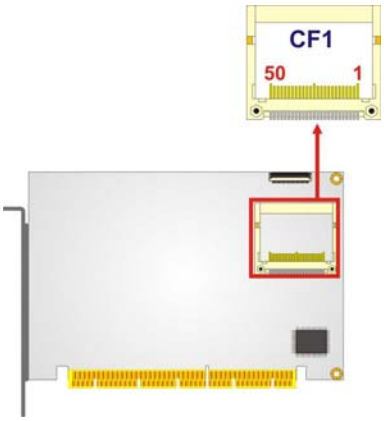
CN Label: **CF1** (solder side)

CN Type: 50-pin slot (2x25)

CN Location: See **Figure 4-6**

CN Pinouts: See **Table 4-6**

A CF Type I or Type II memory card is inserted to the CF socket on the solder side of the PCISA-9652.



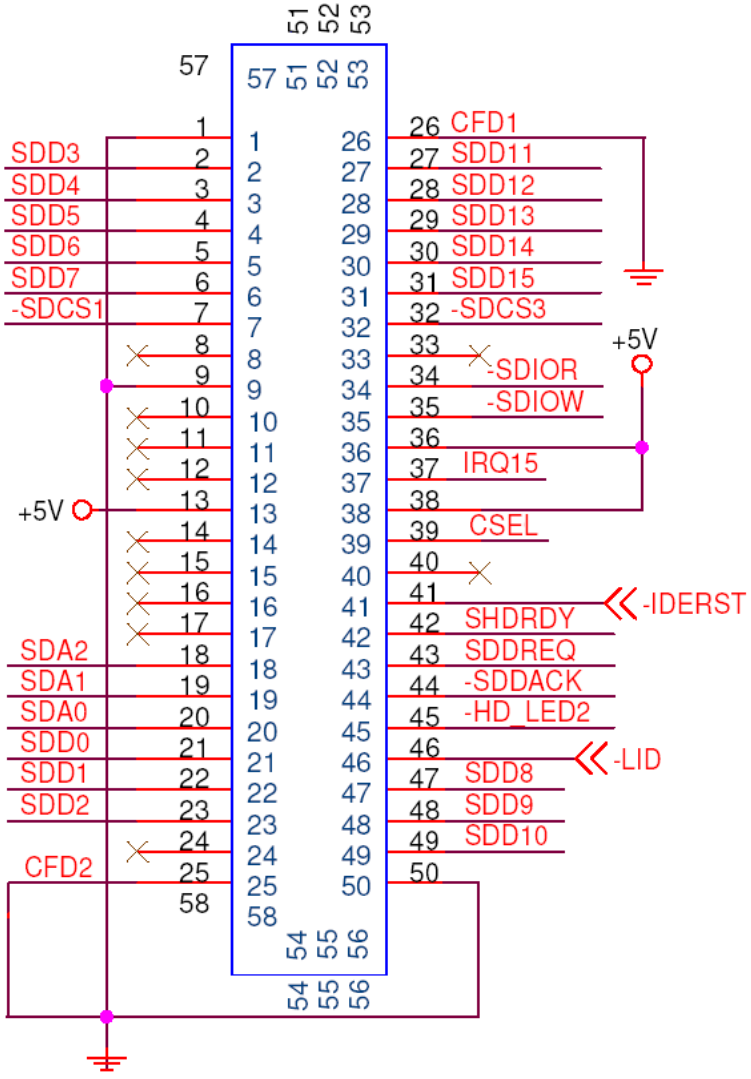


Figure 4-6: CF Card Socket Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	26	VCC-IN CHECK1
2	DATA 3	27	DATA 11
3	DATA 4	28	DATA 12
4	DATA 5	29	DATA 13
5	DATA 6	30	DATA 14
6	DATA 7	31	DATA 15
7	HDC_CS0#	32	HDC_CS1
8	N/C	33	N/C
9	GROUND	34	IOR#
10	N/C	35	IOW#
11	N/C	36	VCC_COM
12	N/C	37	IRQ15
13	VCC_COM	38	VCC_COM
14	N/C	39	CSEL
15	N/C	40	N/C
16	N/C	41	HDD_RESET
17	N/C	42	IORDY
18	SA2	43	SDREQ
19	SA1	44	SDACK#
20	SA0	45	HDD_ACTIVE#
21	DATA 0	46	66DET
22	DATA 1	47	DATA 8
23	DATA 2	48	DATA 9
24	N/C	49	DATA 10
25	VCC-IN CHECK2	50	GROUND

Table 4-6: CF Card Socket Pinouts

4.2.5 Digital Input/Output Connector

CN Label: **DIO1**

CN Type: 10-pin header (2x5)

CN Location: See **Figure 4-7**

CN Pinouts: See **Table 4-7**

The DIO connector is managed through a Super I/O chip. The DIO connector pins are user programmable. The digital IO port of PCISA-9652 is 5V CMOS level.

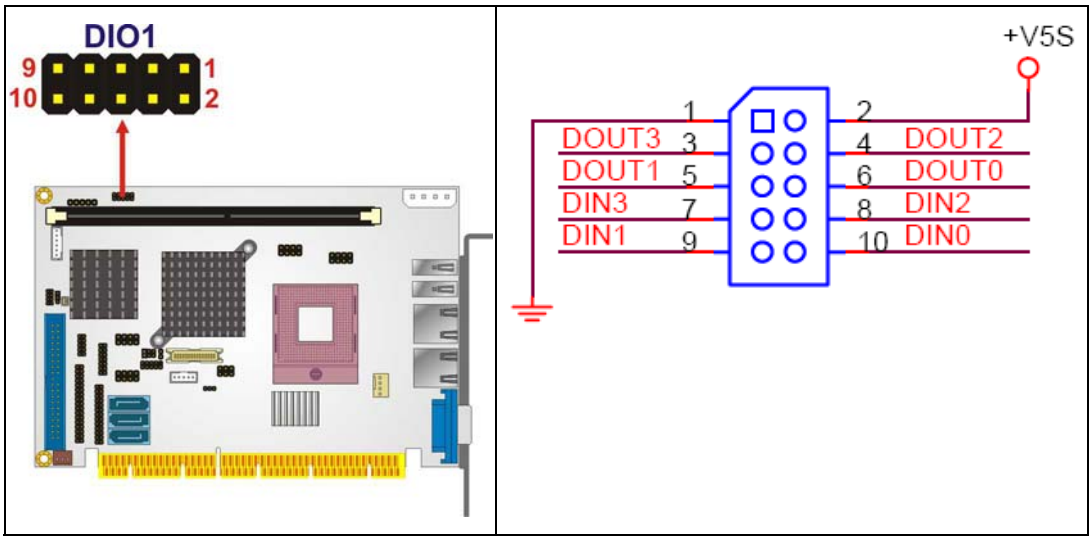


Figure 4-7: GPIO Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	VCC
3	OUTPUT 3	4	OUTPUT 2
5	OUTPUT 1	6	OUTPUT 0
7	INPUT 3	8	INPUT 2
9	INPUT 1	10	INPUT 0

Table 4-7: GPIO Connector Pinouts

4.2.6 Fan Connectors

CN Label: **CPU_FAN1**

CN Type: 4-pin wafer connector (1x3)

CN Location: See **Figure 4-8**

CN Pinouts: See **Table 4-8**

The cooling fan connector provides a 12V, 500mA current to a CPU cooling fan. The connector has a "rotation" pin to get rotation signals from fans and notify the system so the system BIOS can recognize the fan speed. Please note that only specified fans can issue the rotation signals.

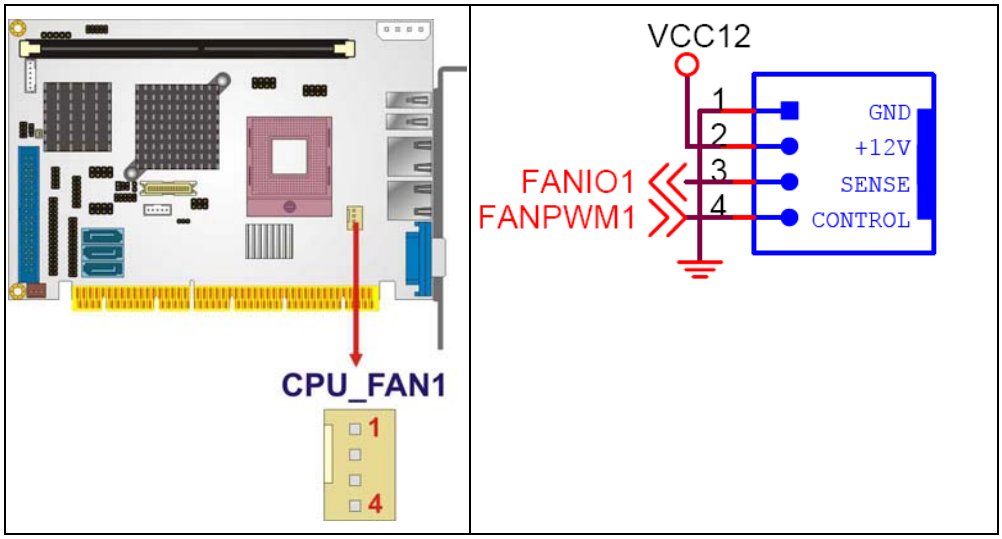


Figure 4-8: Fan Connector Locations

PIN NO.	DESCRIPTION
1	GND
2	+12V
3	Rotation Signal
4	Control

Table 4-8: Fan Connector Pinouts

4.2.7 Floppy Disk Connector (34-pin)

CN Label: **FDD1**

CN Type: 34-pin header (2x17)

CN Location: See **Figure 4-9**

CN Pinouts: See **Table 4-9**

The floppy disk connector is connected to a floppy disk drive.

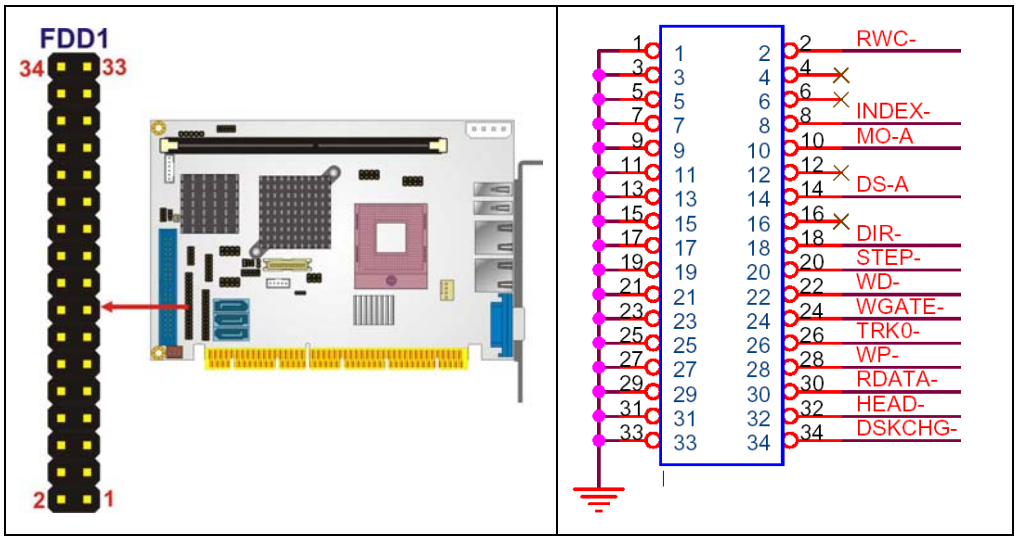


Figure 4-9: 34-pin FDD Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	REDUCE WRITE
3	GND	4	N/C
5	N/C	6	N/C
7	GND	8	INDEX#
9	GND	10	MOTOR ENABLE A#
11	GND	12	DRIVE SELECT B#
13	GND	14	DRIVE SELECT A#
15	GND	16	MOTOR ENABLE B#
17	GND	18	DIRECTION#
19	GND	20	STEP#
21	GND	22	WRITE DATA#
23	GND	24	WRITE GATE#
25	GND	26	TRACK 0#

27	GND	28	WRITE PROTECT#
29	GND	30	READ DATA#
31	GND	32	SIDE 1 SELECT#
33	GND	34	DISK CHANGE#

Table 4-9: 34-pin FDD Connector Pinouts

4.2.8 Flash SPI ROM Connector

CN Label: **JSPI1**

CN Type: 8-pin header (2x4)

CN Location: See **Figure 4-23**

CN Pinouts: See **Table 4-23**

Use the Flash SPI ROM connector to flash SPI ROM.

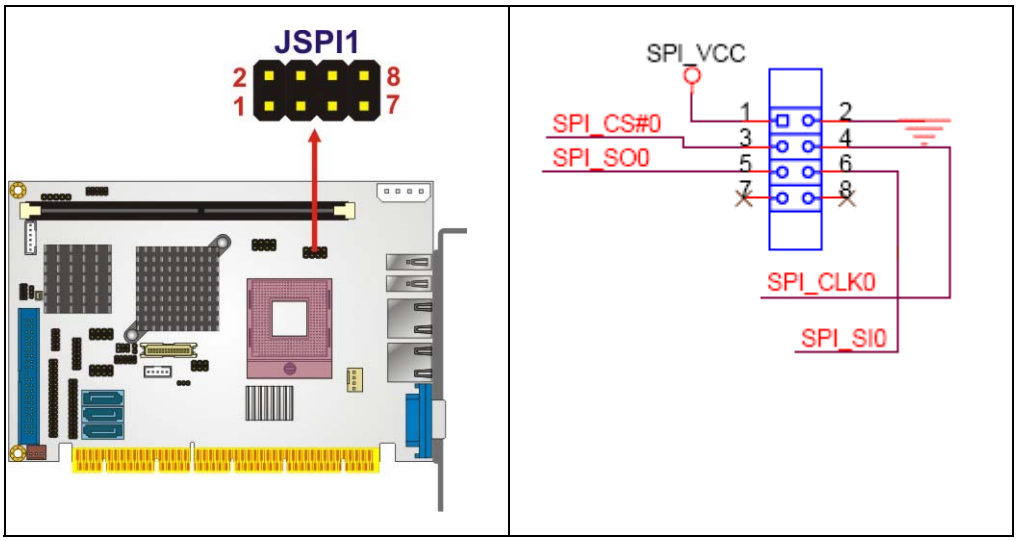


Figure 4-10: Flash SPI ROM Connector Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	3.3V	2	GND
3	CS0	4	CLK
5	SO0	6	SI

7	NC	8	NC

Table 4-10: Flash SPI ROM Connector Pinouts

4.2.9 Front Panel Connector

CN Label: **F_PANEL1**

CN Type: 8-pin header (2x4)

CN Location: See **Figure 4-11**

CN Pinouts: See **Table 4-11**

The front panel connector connects to several external switches and indicators to monitor and control the motherboard. These indicators and switches include:

- Power LED
- Power button
- Reset button
- HDD LED

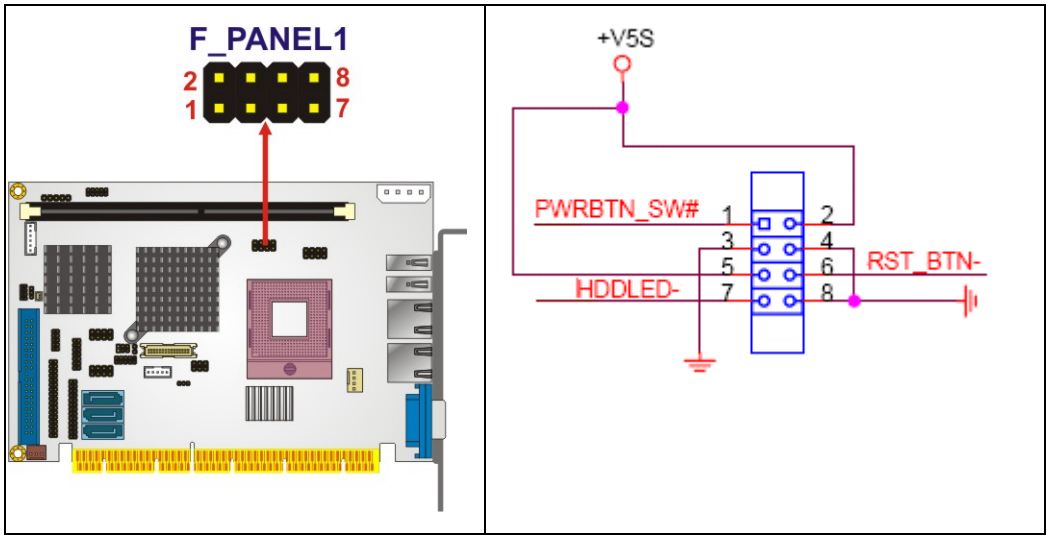


Figure 4-11: Front Panel Connector Location

FUNCTION	PIN	DESCRIPTION	FUNCTION	PIN	DESCRIPTION
Power	1	PWR_BTN+	Power	2	PWR_LED+
Button	3	PWR_BTN-	LED	4	PWR_LED-
HDD LED	5	HDD_LED+	Reset	6	RESET+
	7	HDD_LED-		8	RESET-

Table 4-11: Front Panel Connector Pinouts

4.2.10 IDE Connector

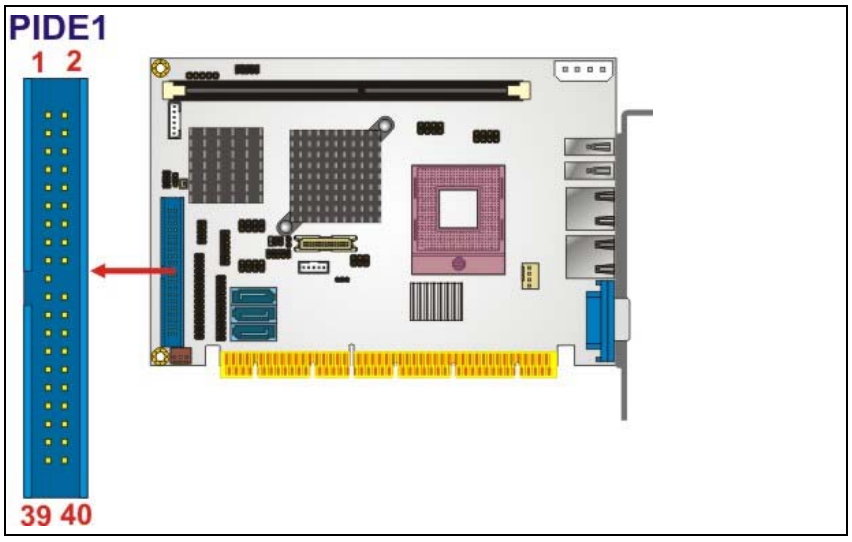
CN Label: **PIDE1**

CN Type: 40-pin box header (2x20)

CN Location: See **Figure 4-12**

CN Pinouts: See **Table 4-12**

One primary 40-pin IDE device connector on the PCISA-9652 motherboard supports connectivity to ATA 100/66/33 IDE devices with data transfer rates up to 100MB/s.



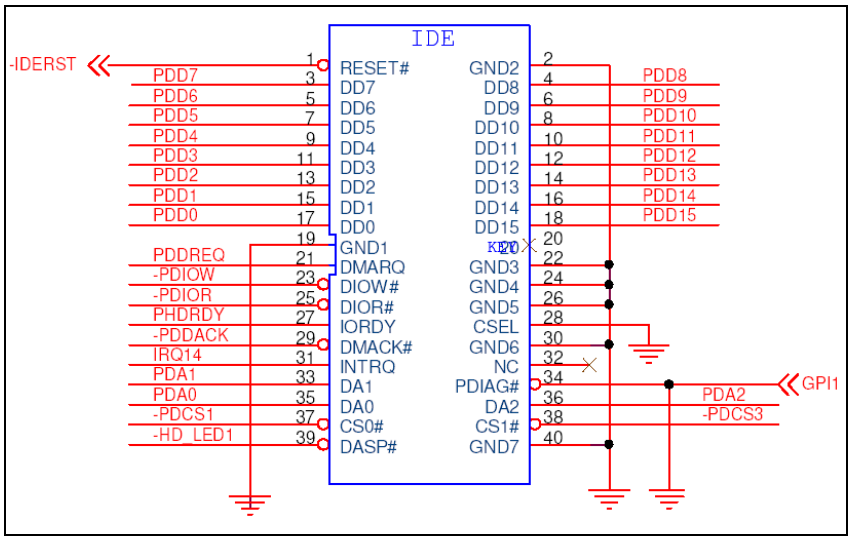


Figure 4-12: IDE Device Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RESET#	2	GND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GND	20	N/C
21	IDE DRQ	22	GND
23	IOW#	24	GND
25	IOR#	26	GND
27	IDE CHRDY	28	BALE – DEFAULT
29	IDE DACK	30	GND
31	INTERRUPT	32	N/C
33	SA1	34	PDIAG#
35	SA0	36	SA2
37	HDC CS0#	38	HDC CS1#

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
39	HDD ACTIVE#	40	GND

Table 4-12: IDE Connector Pinouts

4.2.11 Infrared Interface Connector

CN Label: **IR1**

CN Type: 5-pin header (1x5)

CN Location: See **Figure 4-13**

CN Pinouts: See **Table 4-13**

The infrared interface connector supports both Serial Infrared (SIR) and Amplitude Shift Key Infrared (ASKIR) interfaces.

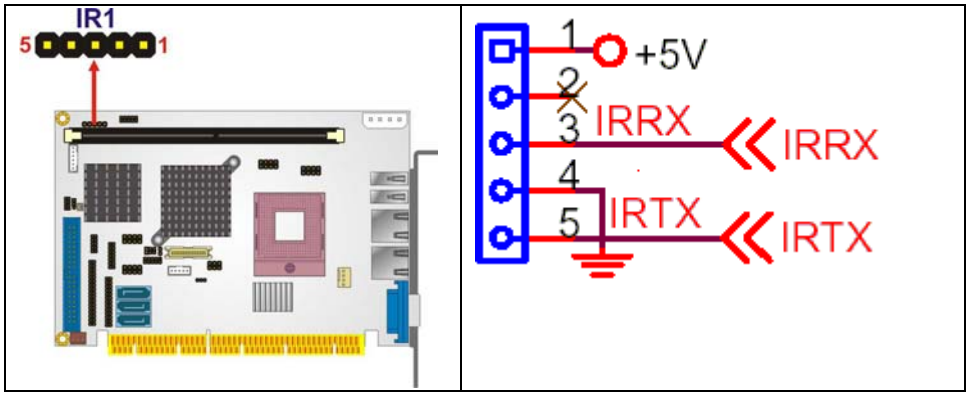


Figure 4-13: Infrared Connector Pinout Locations

PIN NO.	DESCRIPTION
1	VCC
2	NC
3	IR-RX
4	GND
5	IR-TX

Table 4-13: Infrared Connector Pinouts

4.2.12 Keyboard/Mouse Connector

CN Label: **KB_MS1**

CN Type: 6-pin header (1x6)

CN Location: See **Figure 4-14**

CN Pinouts: See **Table 4-14**

The keyboard/mouse connector can be connected to a standard PS/2 cable or PS/2 Y cable to add keyboard and mouse functionality to the system.

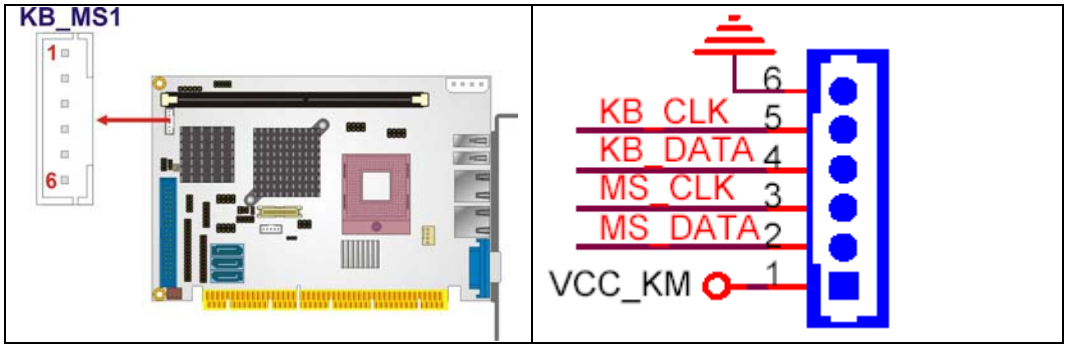


Figure 4-14: Keyboard/Mouse Connector Location

PIN NO.	DESCRIPTION
1	VCC5_KBMS
2	MS DATA
3	MS CLK
4	KB DATA
5	KB CLK
6	KB GROUND

Table 4-14: Keyboard/Mouse Connector Pinouts

4.2.13 LCD Backlight Connector

CN Label: **INVERTER1**

CN Type: 5-pin wafer connector (1x5)

CN Location: See **Figure 4-15**

CN Pinouts: See **Table 4-15**

The LCD backlight connector is for the LCD inverter connection.

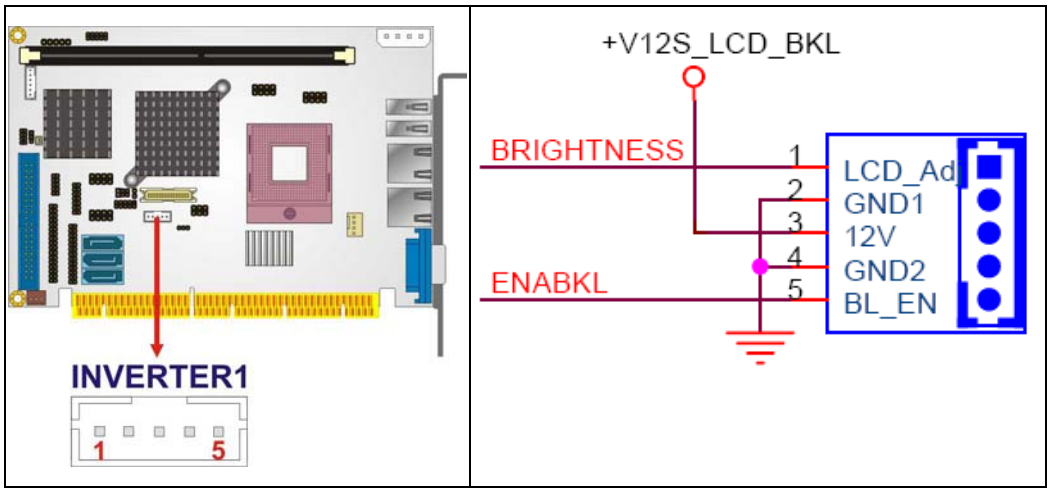


Figure 4-15: LCD Backlight Connector Location

PIN NO.	DESCRIPTION
1	BRIGHTNESS
2	GND1
3	12V
4	GND2
5	BL_EN

Table 4-15: LCD Backlight Connector Pinouts

4.2.14 LVDS LCD connector

CN Label: **LVDS1**

CN Type: 30-pin crimp connector (2x15)

CN Location: See **Figure 4-16**

CN Pinouts: See **Table 4-16**

The connector supports one or two channel 24-bit LVDS panel.

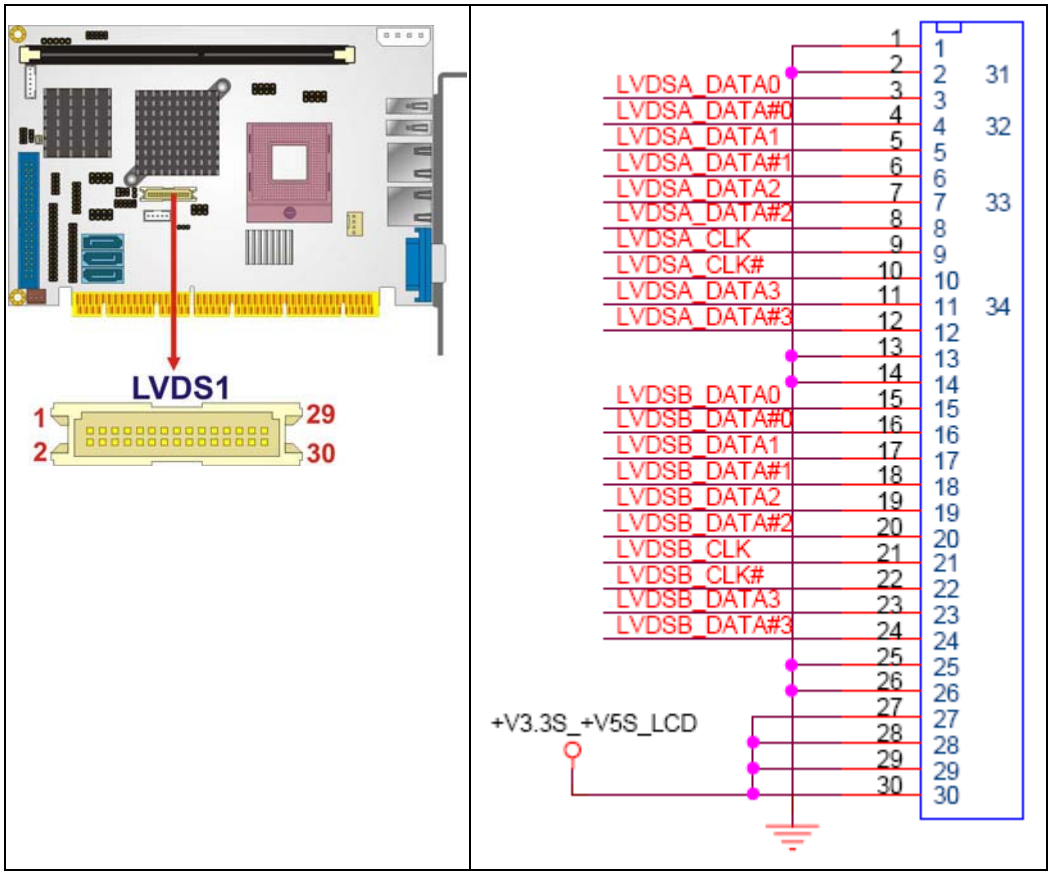


Figure 4-16: LVDS LCD Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	1st LVDS data0 output +	4	1st LVDS data0 output -
5	1st LVDS data1 output +	6	1st LVDS data1 output -
7	1st LVDS data2 output +	8	1st LVDS data2 output -
9	1st LVDS clock output +	10	1st LVDS clock output -
11	1st LVDS data3 output +	12	1st LVDS data3 output -
13	GND	14	GND
15	2nd LVDS data0 output +	16	2nd LVDS data0 output -
17	2nd LVDS data1 output +	18	2nd LVDS data1 output -

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
19	2nd LVDS data2 output +	20	2nd LVDS data2 output -
21	2nd LVDS clock output +	22	2nd LVDS clock output -
23	2nd LVDS data3 output +	24	2nd LVDS data3 output -
25	GND	26	GND
27	+LCD (3.3V or 5V)	28	+LCD (3.3V or 5V)
29	+LCD (3.3V or 5V)	30	+LCD (3.3V or 5V)

Table 4-16: LVDS LCD Connector Pinouts

4.2.15 Parallel Port Connector

CN Label: **LPT1**

CN Type: 26-pin header (2x13)

CN Location: See **Figure 4-17**

CN Pinouts: See **Table 4-17**

The 26-pin parallel port connector connects to a parallel port connector interface or some other parallel port device such as a printer.

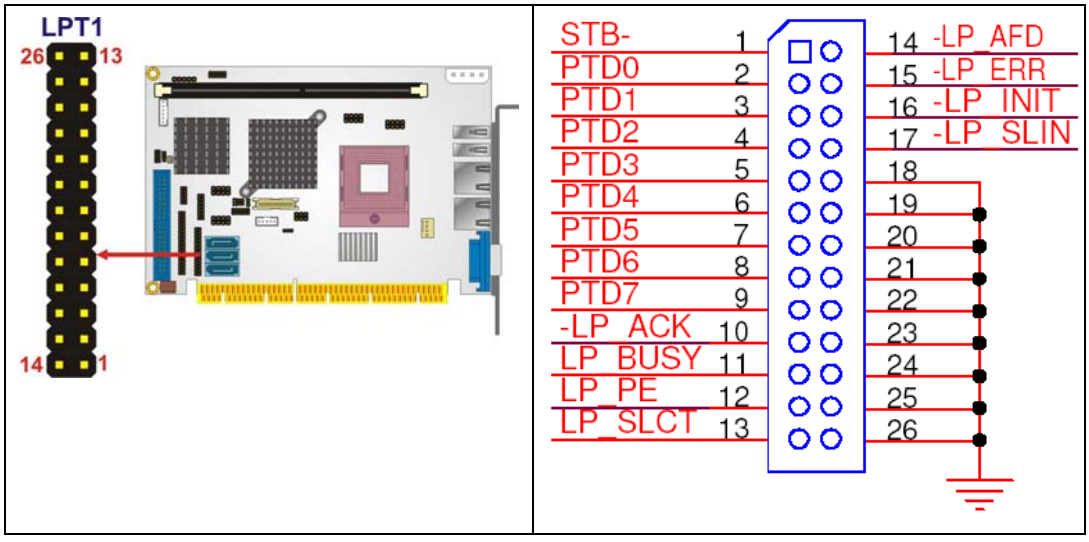


Figure 4-17: Parallel Port Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	STROBE#	2	DATA 0
3	DATA 1	4	DATA 2
5	DATA 3	6	DATA 4
7	DATA 5	8	DATA 6
9	DATA 7	10	ACKNOWLEDGE
11	BUSY	12	PAPER EMPTY
13	PRINTER SELECT	14	AUTO FORM FEED #
15	ERROR#	16	INITIALIZE
17	PRINTER SELECT LN#	18	GROUND
19	GROUND	20	GROUND
21	GROUND	22	GROUND
23	GROUND	24	GROUND
25	GROUND	26	NC

Table 4-17: Parallel Port Connector Pinouts

4.2.16 SATA Drive Connectors

CN Label: **S_ATA1**, **S_ATA2** and **S_ATA3**

CN Type: 7-pin SATA drive connectors (1x7)

CN Location: See **Figure 4-18**

CN Pinouts: See **Table 4-18**

The three SATA drive connectors are connected to three SATA II drives. SATA II drives transfer data at speeds as high as 3.0Gbps.

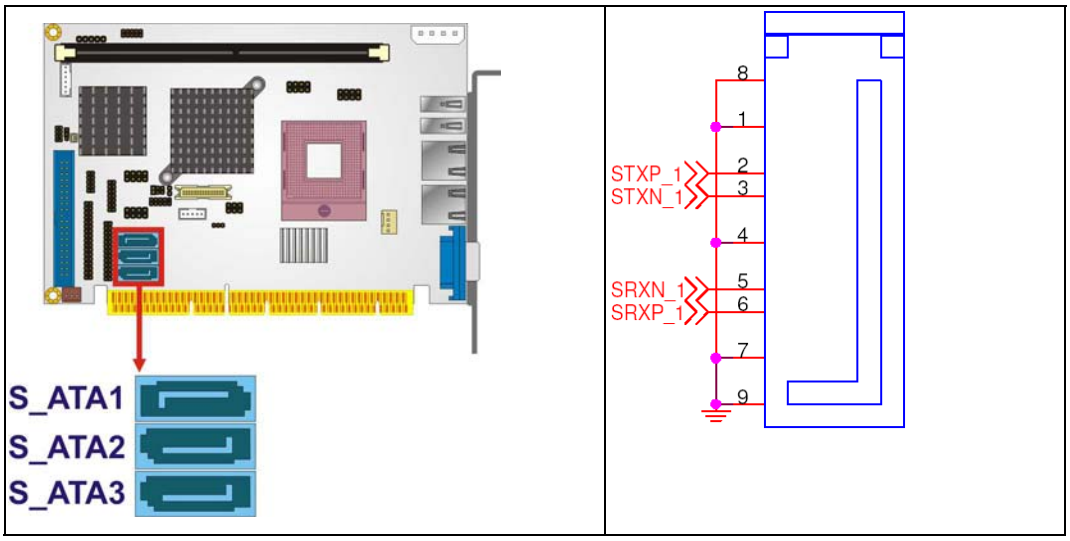


Figure 4-18: SATA Drive Connector Locations

PIN NO.	DESCRIPTION
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

Table 4-18: SATA Drive Connector Pinouts

4.2.17 SDVO Connector

CN Label: **CN1**

CN Type: 47-pin connector (1x47)

CN Location: See **Figure 4-19**

CN Pinouts: See **Table 4-19**

The 47-pin SDVO (Serial Digital Video Out) connector supports additional video signaling interfaces.

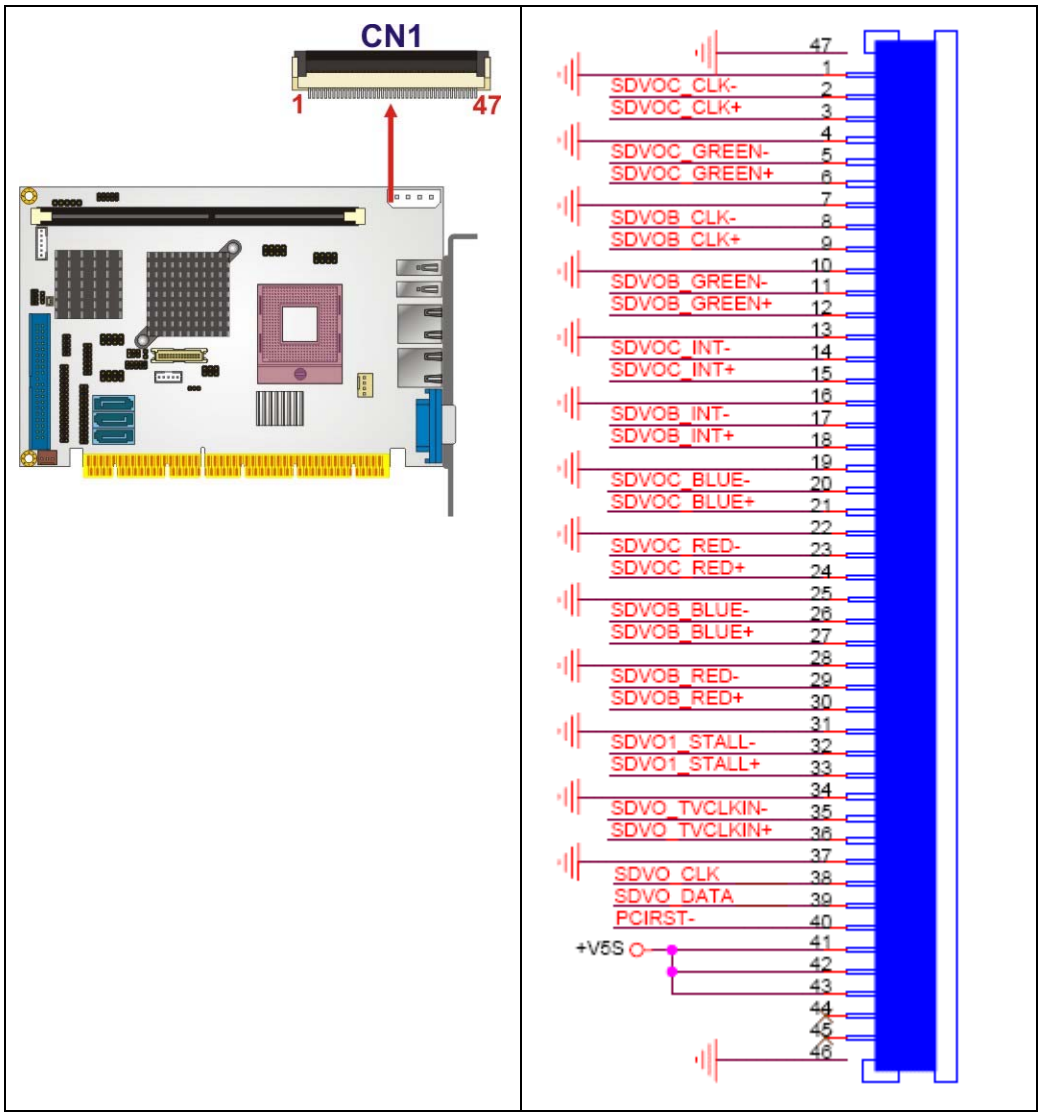


Figure 4-19: SDVO Connector Pinout Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	25	GROUND
2	SDVOC_CLK-	26	SDVOB_BLUE-
3	SDVOC_CLK+	27	SDVOB_BLUE+
4	GROUND	28	GROUND
5	SDVOC_GREEN-	29	SDVOB_RED-
6	SDVOC_GREEN+	30	SDVOB_RED+
7	GROUND	31	GROUND

8	SDVOB_CLK-	32	SDVO1_STALL-
9	SDVOB_ CLK+	33	SDVO1_STALL+
10	GROUND	34	GROUND
11	SDVOB_GREEN-	35	SDVO_TVCLKIN-
12	SDVOB_GREEN+	36	SDVO_TVCLKIN+
13	GROUND	37	GROUND
14	SDVOC_INT+	38	SDVO_CLK
15	SDVOC_INT+	39	SDVO_DATA
16	GROUND	40	PCIRST
17	SDVOB_INT+	41	+5VS
18	SDVOB_INT+	42	+5VS
19	GROUND	43	+5VS
20	SDVOC_BLUE-	44	NC
21	SDVOC_BLUE+	45	NC
22	GROUND	46	GROUND
23	SDVOC_RED-	47	GROUND
24	SDVOC_RED+		

Table 4-19: SDVO Connector Pinouts

4.2.18 Serial Port Connector (COM 1, RS-232)

CN Label: **COM1**

CN Type: 10-pin header (2x5)

CN Location: See **Figure 4-20**

CN Pinouts: See **Table 4-20**

The 10-pin serial port connector provides a RS-232 serial communications channel. The COM 1 serial port connector can be connected to external RS-232 serial port devices.

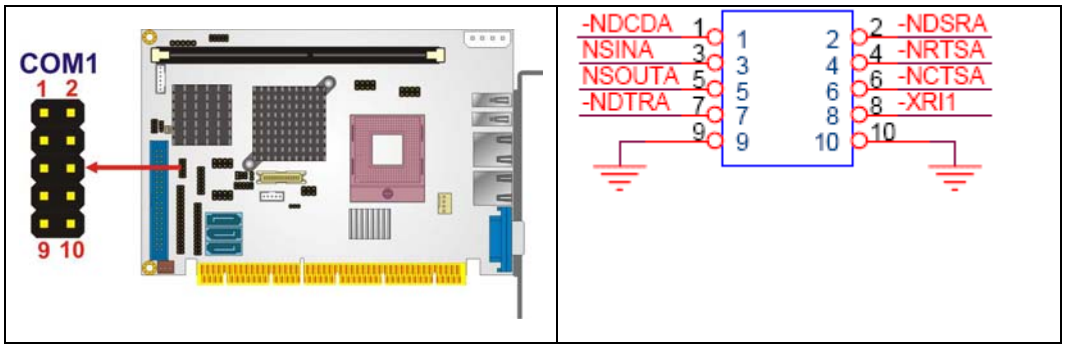


Figure 4-20: RS-232 Connector Pinout Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Data Carrier Direct (DCD)	2	Data Set Ready (DSR)
3	Receive Data (RXD)	4	Request To Send (RTS)
5	Transmit Data (TXD)	6	Clear To Send (CTS)
7	Data Terminal Ready (DTR)	8	Ring Indicator (RI)
9	Ground (GND)	10	Ground (GND)

Table 4-20: RS-232 Connector Pinouts

4.2.19 Serial Port Connector (COM 2, RS-232/422/485)

CN Label: **COM2**

CN Type: 14-pin header (2x7)

CN Location: See **Figure 4-21**

CN Pinouts: See **Table 4-21**

The serial ports connectors connect to RS-232/422/485 serial port device.

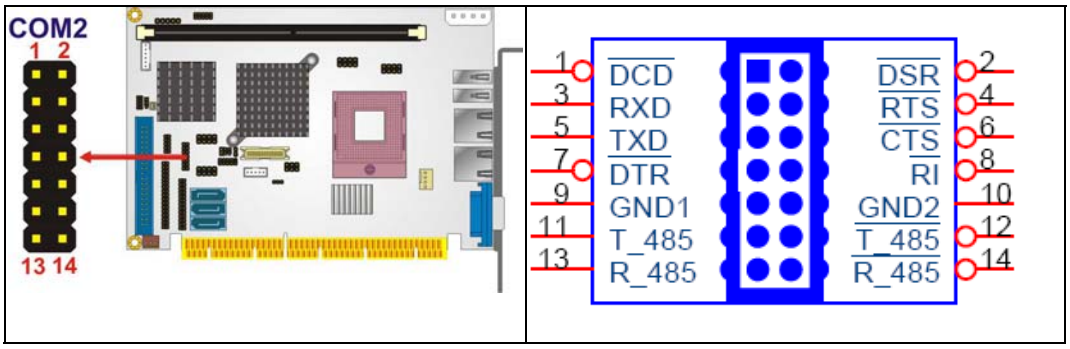


Figure 4-21: 14-Pin Serial Port Connector Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	GND
11	TXD 485+	12	TXD 485#
13	RXD 485+	14	RXD 485#

Table 4-21: COM 2 Pinouts

4.2.20 TV Out Connector

CN Label: **TV1**

CN Type: 6-pin header (2x3)

CN Location: See **Figure 4-22**

CN Pinouts: See **Table 4-22**

The 2x3 pin TV out connector connects to a TV output by using an S-Video or RCA connector. The TV out connector makes displaying media data on a television easier.

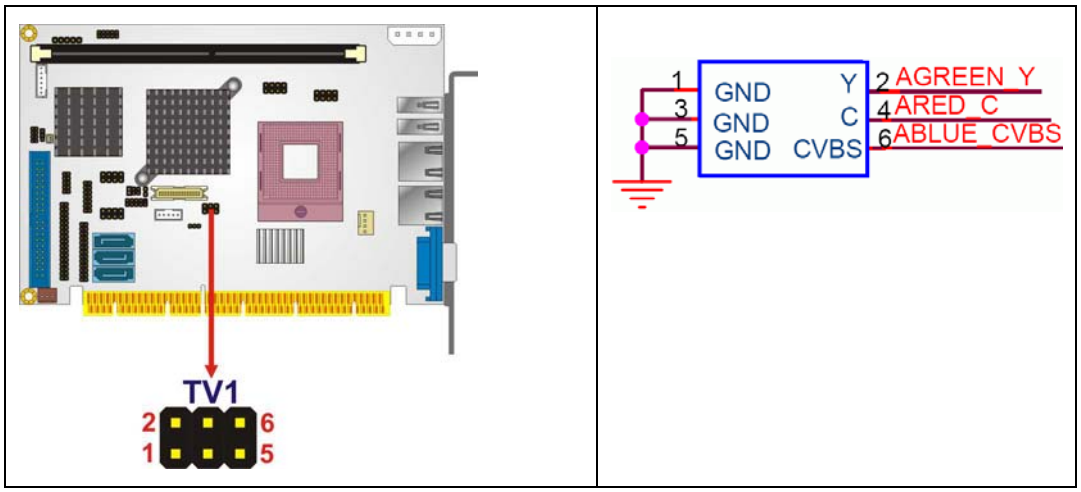


Figure 4-22: TV Connector Pinout Locations

S-Video Connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	GND	2	AGREEN_Y
3	GND	4	ARED_C
RCA Connector (only video signal)			
5	GND	6	ABLUE_CVBS

Table 4-22: TV Port Connector Pinouts

4.2.21 Internal USB Connectors

CN Label: **USB01** and **USB23**

CN Type: 8-pin header (2x4)

CN Location: See **Figure 4-23**

CN Pinouts: See **Table 4-23**

One 2x4 pin connector provides connectivity to two USB 2.0 ports. The USB ports are used for I/O bus expansion.

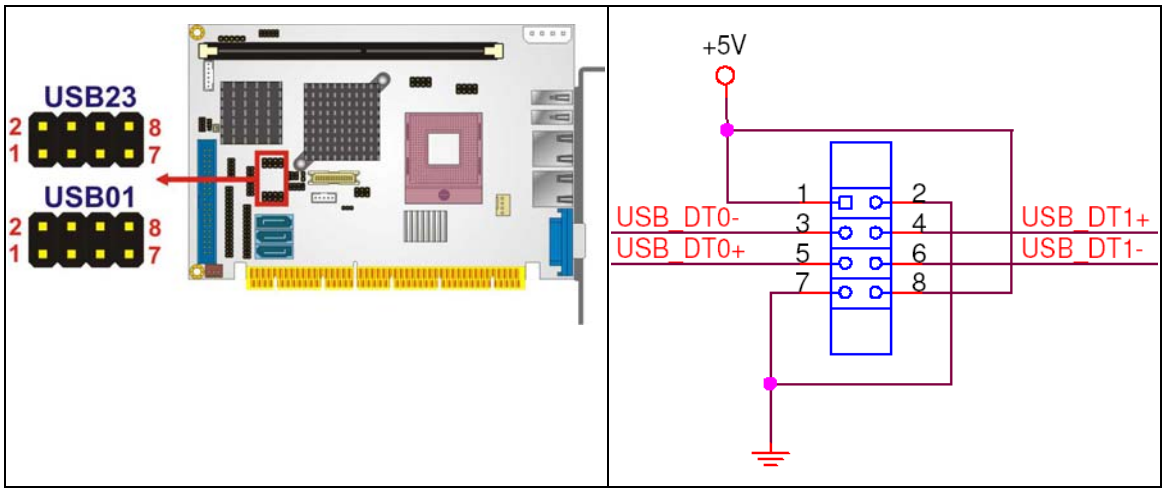


Figure 4-23: Internal USB Connector Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	5V_STANDBY	2	GND
3	DATA-	4	DATA+
5	DATA+	6	DATA-
7	GND	8	5V_STANDBY

Table 4-23: USB3 and USB4 Pinouts

4.3 External Interface Connectors

The peripheral connectors on the back panel are connected to devices externally when the PCISA-9652 is installed in a chassis. The peripheral connectors on the rear panel are:

- 1 x CRT connector
- 2 x RJ-45 Ethernet connectors
- 2 x USB 2.0 connectors

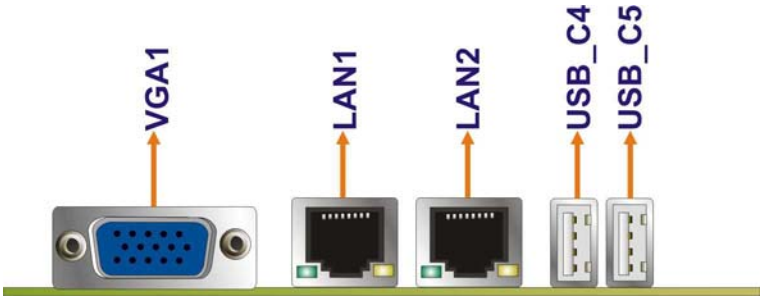


Figure 4-24: PCISA-9652 External Interface Connectors

4.3.1 CRT Connector

CN Label: **VGA1**

CN Type: 15-pin female connector

CN Location: See **Figure 4-24**

CN Pinouts: See **Table 4-24** and **Figure 4-25**

The standard 15-pin VGA connector connects to a CRT or LCD display monitor.

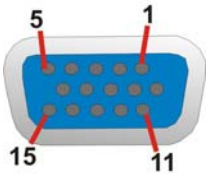


Figure 4-25: VGA Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RED	2	GREEN
3	BLUE	4	N/C
5	GND	6	GND
7	GND	8	GND
9	VCC	10	GND
11	N/C	12	DDC DAT
13	HSYNC	14	VSYNC
15	DDC CLK		

Table 4-24: VGA Connector Pinouts

4.3.2 Ethernet Connectors

CN Label: **LAN1** and **LAN2**

CN Type: RJ-45

CN Location: See **Figure 4-24**

CN Pinouts: See **Table 4-25**

The PCISA-9652 is equipped with two built-in GbE Ethernet controllers. The controllers can connect to the LAN through two RJ-45 LAN connectors. There are two LEDs on the connector indicating the status of LAN. The pin assignments are listed in the following table:

PIN	DESCRIPTION	PIN	DESCRIPTION
1	MDIA3-	5	MDIA1+
2	MDIA3+	6	MDIA2+-
3	MDIA2-	7	MDIA0-
4	MDIA1-	8	MDIA0+

Table 4-25: LAN1 and LAN2 Pinouts

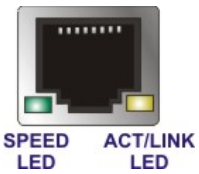


Figure 4-26: RJ-45 Ethernet Connector

The RJ-45 Ethernet connector has two status LEDs, one green and one yellow. The green LED indicates activity on the port and the yellow LED indicates the port is linked. See **Table 4-26**.

SPEED LED		ACT/LINK LED	
STATUS	**DESCRIPTION**	**STATUS**	**DESCRIPTION**
OFF	10Mbps connection	OFF	No link
ORANGE	100Mbps connection	YELLOW	Linked
GREEN	1Gbps connection	BLINKING	Data Activity

Table 4-26: RJ-45 Ethernet Connector LEDs

4.3.3 USB Connector

CN Label: **USB_C4** and **USB_C5**

CN Type: USB port

CN Location: See **Figure 4-24**

CN Pinouts: See **Table 4-27**

USB devices can be connected directly to the USB connectors on the rear panel.

PIN NO.	DESCRIPTION
1	VCC
2	DATA-
3	DATA+
4	GND

Table 4-27: External USB Connector Pinouts

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Chapter

5

Installation

5.1 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the PCISA-9652 may result in permanent damage to the PCISA-9652 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the PCISA-9652. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the PCISA-9652, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding***: Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring the PCISA-9652, place it on an antic-static pad. This reduces the possibility of ESD damaging the PCISA-9652.
- ***Only handle the edges of the PCB***: When handling the PCB, hold the PCB by the edges.

5.2 Installation Considerations

NOTE:

The following installation notices and installation considerations should be read and understood before the PCISA-9652 is installed. All installation notices pertaining to the installation of the PCISA-9652 should be strictly adhered to. Failing to adhere to these precautions may lead to severe damage of the PCISA-9652 and injury to the person installing the motherboard.

5.2.1 Installation Notices

WARNING:

The installation instructions described in this manual should be carefully followed in order to prevent damage to the PCISA-9652, PCISA-9652 components and injury to the user.

Before and during the installation please **DO** the following:

- **Read the user manual**:
  - The user manual provides a complete description of the PCISA-9652 installation instructions and configuration options.
- **Wear an electrostatic discharge cuff (ESD)**:
  - Electronic components are easily damaged by ESD. Wearing an ESD cuff removes ESD from the body and helps prevent ESD damage.
- **Place the PCISA-9652 on an antistatic pad**:
  - When installing or configuring the motherboard, place it on an antistatic pad. This helps to prevent potential ESD damage.
- **Turn all power to the PCISA-9652 off**:

- When working with the PCISA-9652, make sure that it is disconnected from all power supplies and that no electricity is being fed into the system.

Before and during the installation of the PCISA-9652 **DO NOT:**

- Remove any of the stickers on the PCB board. These stickers are required for warranty validation.
- Use the product before verifying all the cables and power connectors are properly connected.
- Allow screws to come in contact with the PCB circuit, connector pins, or its components.

5.2.2 Installation Checklist

The following checklist is provided to ensure the PCISA-9652 is properly installed.

- All the items in the packing list are present
- The CPU is installed
- The CPU cooling kit is properly installed
- A compatible memory module is properly inserted into the slot
- The jumpers have been properly configured
- The PCISA-9652 is inserted into a chassis with adequate ventilation
- The correct power supply is being used
- The following devices are properly connected
  - IDE device
  - SATA drives
  - Power supply
  - USB cable
  - Parallel port cable
  - Serial port cable
- The following external peripheral devices are properly connected to the chassis:
  - VGA screen
  - RJ-45 Ethernet cable
  - USB devices

5.3 CPU, CPU Cooling Kit and DIMM Installation

WARNING:

A CPU should never be turned on without the specified cooling kit being installed. If the cooling kit (heat sink and fan) is not properly installed and the system turned on, permanent damage to the CPU, PCISA-9652 and other electronic components attached to the system may be incurred. Running a CPU without a cooling kit may also result in injury to the user.

The CPU, CPU cooling kit and DIMM are the most critical components of the PCISA-9652. If one of these component is not installed the PCISA-9652 cannot run.

5.3.1 Socket P CPU Installation

WARNING:

CPUs are expensive and sensitive components. When installing the CPU please be careful not to damage it in anyway. Make sure the CPU is installed properly and ensure the correct cooling kit is properly installed.

To install a socket P CPU onto the PCISA-9652, follow the steps below:

WARNING:

When handling the CPU, only hold it on the sides. DO NOT touch the pins at the bottom of the CPU.

Step 1: **Unlock the CPU retention screw.** When shipped, the retention screw of the

CPU socket should be in the unlocked position. If it is not in the unlocked position, use a screwdriver to unlock the screw. See **Figure 5-1**.

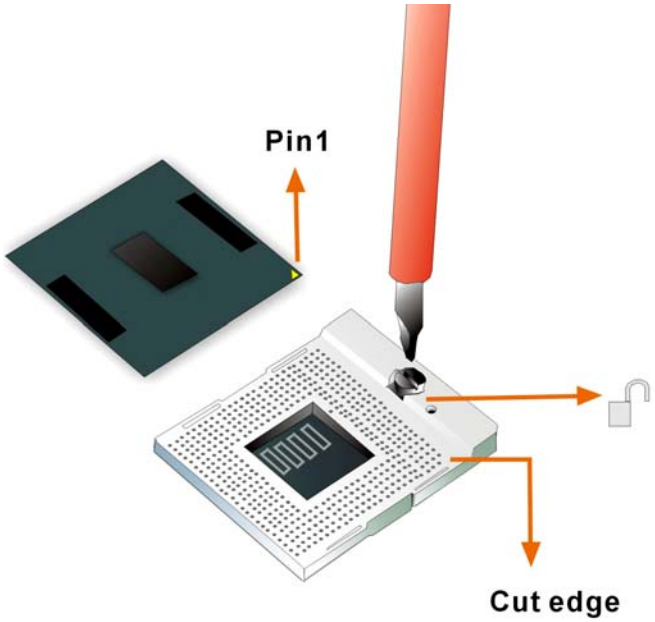


Figure 5-1: Make sure the CPU socket retention screw is unlocked

Step 2: **Inspect the CPU socket.** Make sure there are no bent pins and make sure the socket contacts are free of foreign material. If any debris is found, remove it with compressed air.

Step 3: **Correctly Orientate the CPU**. Make sure the IHS (integrated heat sink) side is facing upwards.

Step 4: **Correctly position the CPU.** Match the Pin 1 mark with the cut edge on the CPU socket. See **Figure 5-1**.

Step 5: **Align the CPU pins.** Carefully align the CPU pins with the holes in the CPU socket.

Step 6: **Insert the CPU.** Gently insert the CPU into the socket. If the CPU pins are properly aligned, the CPU should slide into the CPU socket smoothly.

Step 7: **Lock the retention screw.** Rotate the retention screw into the locked position. See **Figure 5-2**.

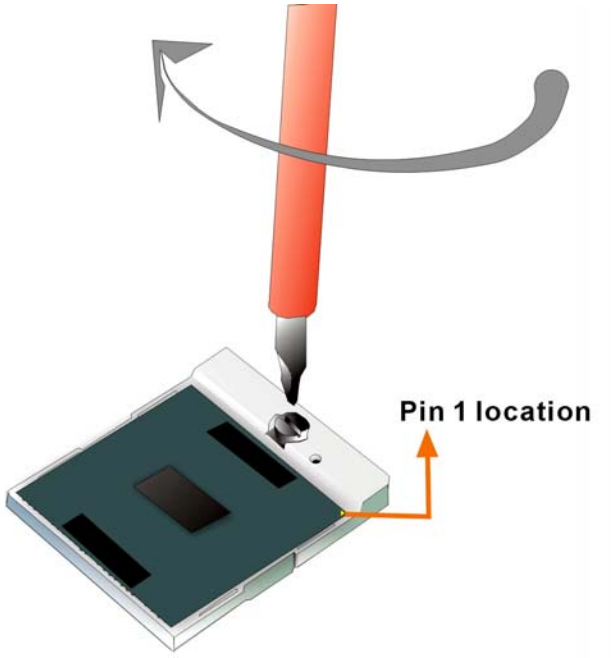


Figure 5-2: Lock the CPU Socket Retention Screw

5.3.2 Cooling Kit CF-479B-RS Installation

Figure 5-3: IEI CF-479B-RS Cooling Kit

An IEI Socket P CPU cooling kit can be purchased separately. The cooling kit comprises a CPU heat sink and a cooling fan.

WARNING:

Do not wipe off (accidentally or otherwise) the pre-sprayed layer of thermal paste on the bottom of the CF-479B-RS heat sink. The thermal paste between the CPU and the heat sink is important for optimum heat dissipation.

To install the CF-479B-RS cooling kit, please follow the steps below.

Step 1: **Place the cooling kit onto the CPU**. Make sure the CPU cooling fan cable can be properly routed when the cooling kit is installed.

Step 2: **Properly align the cooling kit**. Make sure its four spring screw fasteners can pass through the pre-drilled holes on the PCB.

Step 3: **Secure the cooling kit**. From the solder side of the PCB, align the support bracket to the screw threads on heat sink that were inserted through the PCB holes. (See **Figure 5-4**)

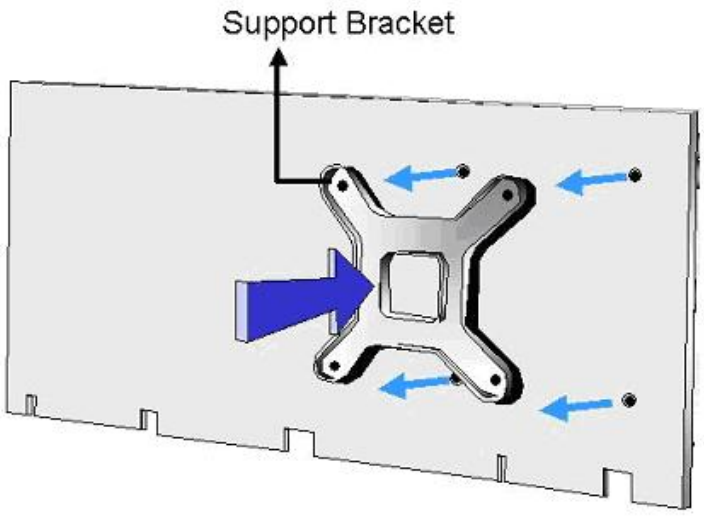


Figure 5-4: Cooling Kit Support Bracket

Step 4: **Tighten the screws**. Use a screwdriver to tighten the four screws. Tighten each nut a few turns at a time and do not over-tighten the screws.

Step 5: **Connect the fan cable**. Connect the cooling kit fan cable to the fan connector on the motherboard. Carefully route the cable and avoid heat generating chips and fan blades. See **Figure 5-5**.

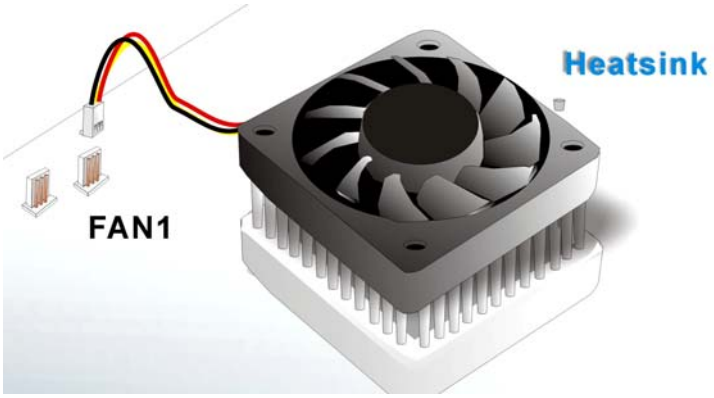


Figure 5-5: Connect the cooling fan cable

5.3.3 DIMM Installation

WARNING:

Only DDR2 memory module can be installed on the PCISA-9652. Do not install DDR memory modules. If a DDR memory module is installed on the PCISA-9652, the PCISA-9652 may be irreparably damaged. Please make sure the purchased DIMM complies with the memory specifications of the PCISA-9652. DIMM specifications compliant with the PCISA-9652 are listed in **Chapter 2**.

CAUTION:

The **DIMM1** socket must be installed with one DDR2 DIMM to enable the PCISA-9652 to boot-up properly.

To install a DIMM into a DIMM socket, please follow the steps below and refer to **Figure 5-6**.

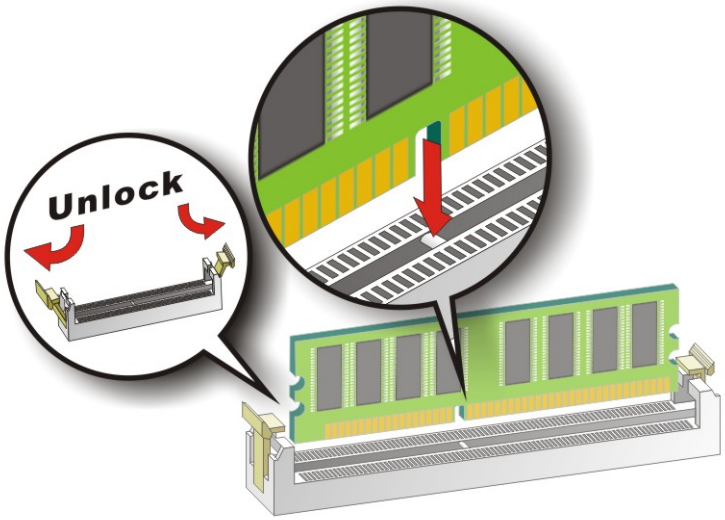


Figure 5-6: Installing a DIMM

Step 1: **Open the DIMM socket handles**. The DIMM socket has two handles that secure the DIMM into the socket. Before the DIMM can be inserted into the socket, the handles must be opened. See **Figure 5-6**.

Step 2: **Align the DIMM with the socket**. The DIMM must be oriented in such a way that the notch in the middle of the DIMM must be aligned with the plastic bridge in the socket. See **Figure 5-6**.

Step 3: **Insert the DIMM**. Once properly aligned, the DIMM can be inserted into the socket. As the DIMM is inserted, the white handles on the side of the socket will

close automatically and secure the DIMM to the socket. See **Figure 5-6**.

Step 4: **Removing a DIMM**. To remove a DIMM, push both handles outward. The memory module is ejected by a mechanism in the socket.

5.4 Jumper Settings

NOTE:

A jumper is a metal bridge used to close an electrical circuit. It consists of two or three metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To CLOSE/SHORT a jumper means connecting the pins of the jumper with the plastic clip and to OPEN a jumper means removing the plastic clip from a jumper.

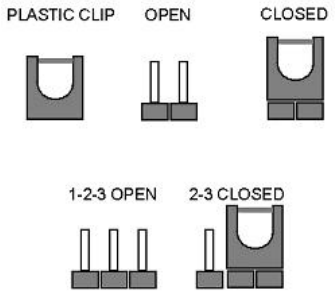


Figure 5-7: Jumper Locations

Before the PCISA-9652 is installed in the system, the jumpers must be set in accordance with the desired configuration. The jumpers on the PCISA-9652 are listed in **Table 5-1**.

Description	Label	Type
CF card setup	JCF1	2-pin header
Clear CMOS	J_CMOS1	3-pin header
COM 2 function selection	JP2	6-pn header
LVDS LCD voltage selection	J_LVDS1	3-pin header
LVDS LCD resolution selection	J_LCD_TYPE1	8-pin header

Table 5-1: Jumpers

5.4.1 CF Card Setup

Jumper Label:	**JCF1**
Jumper Type:	2-pin header
Jumper Settings:	See **Table 5-2**
Jumper Location:	See **Figure 5-8**

The CF Card Setup jumper sets the CF Type I card or CF Type II cards as either the slave device or the master device. CF Card Setup jumper settings are shown in **Table 5-2**.

CF Card Setup	Description	
Open	Slave	Default
Closed	Master	

Table 5-2: CF Card Setup Jumper Settings

The CF Card Setup jumper location is shown in **Figure 5-8**.

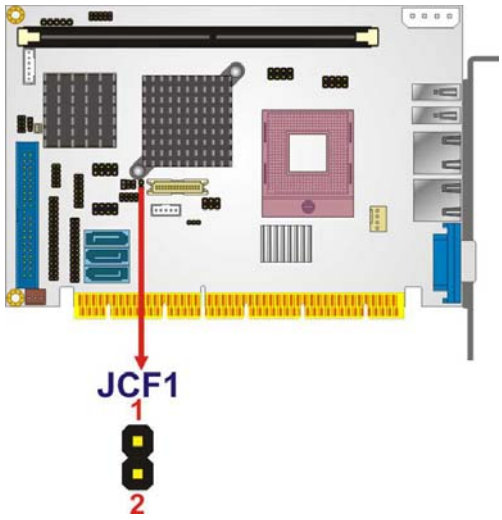


Figure 5-8: CF Card Setup Jumper Location

5.4.2 Clear CMOS Jumper

Jumper Label:	**J_COMS1**
Jumper Type:	3-pin header
Jumper Settings:	See **Table 5-3**
Jumper Location:	See **Figure 5-9**

If the PCISA-9652 fails to boot due to improper BIOS settings, the clear CMOS jumper clears the CMOS data and resets the system BIOS information. To do this, use the jumper cap to close pins 2 and 3 for a few seconds then reinstall the jumper clip back to pins 1 and 2.

If the “CMOS Settings Wrong” message is displayed during the boot up process, the fault may be corrected by pressing the F1 to enter the CMOS Setup menu. Do one of the following:

- Enter the correct CMOS setting
- Load Optimal Defaults
- Load Failsafe Defaults.

After having done one of the above, save the changes and exit the CMOS Setup menu.

The clear CMOS jumper settings are shown in **Table 5-3**.

Clear CMOS	Description	
Short 1 - 2	Keep CMOS Setup	Default
Short 2 - 3	Clear CMOS Setup	

Table 5-3: Clear CMOS Jumper Settings

The location of the clear CMOS jumper is shown in **Figure 5-9** below.

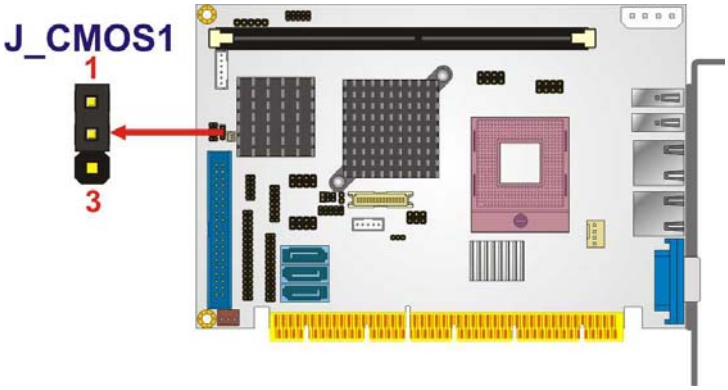


Figure 5-9: Clear CMOS Jumper

5.4.3 COM 2 Function Select Jumper

Jumper Label:	**JP2**
Jumper Type:	6-pin header
Jumper Settings:	See **Table 5-4**
Jumper Location:	See **Figure 5-10**

The COM 2 Function Select jumper sets the communication protocol used by the second serial communications port (COM 2) as RS-232, RS-422 or RS-485. The COM 2 Function Select settings are shown in **Figure 5-10**.

COM 2 Function Select	Description	
Short 1-2	RS-232	Default
Short 3-4	RS-422	
Short 5-6	RS-485	

Table 5-4: COM 2 Function Select Jumper Settings

The COM 2 Function Select jumper location is shown in **Table 5-4**.

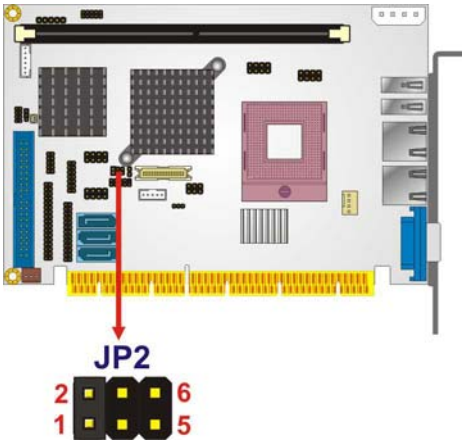


Figure 5-10: COM 2 Function Select Jumper Location

5.4.4 LVDS Voltage Selection

WARNING:

Permanent damage to the screen and PCISA-9652 may occur if the wrong voltage is selected with this jumper. Please refer to the user guide that cam with the monitor to select the correct voltage.

Jumper Label:	**J_VLVDS1**
Jumper Type:	3-pin header
Jumper Settings:	See **Table 5-5**
Jumper Location:	See **Figure 5-11**

The **LVDS Voltage Selection** jumper allows the LVDS screen voltage to be set. The **LVDS Voltage Selection** jumper settings are shown in **Table 5-5**.

LVDS Voltage Select	Description	
Short 1-2	+3V	Default
Short 2-3	+5V	

Table 5-5: LVDS Voltage Selection Jumper Settings

The LVDS Voltage Selection jumper location is shown in **Figure 5-11**.

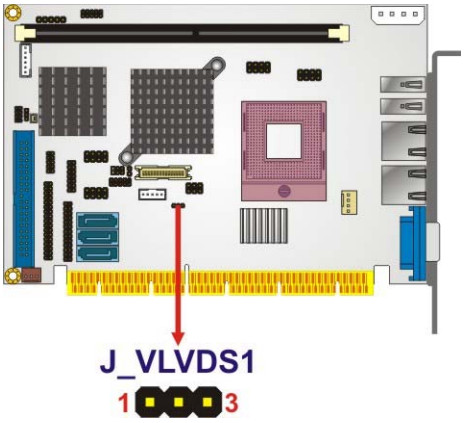


Figure 5-11: LVDS Voltage Selection Jumper Pinout Locations

5.4.5 LVDS Panel Resolution Selection

Jumper Label: **J_LCD_TYPE1**

Jumper Type: 8-pin header

Jumper Settings: See **Table 5-6**

Jumper Location: See **Figure 5-12**

The **LVDS Panel Resolution Selection** jumper allows the LVDS screen resolution to be set. The **LVDS Panel Resolution Selection** jumper settings are shown in **Table 5-6**.

LVDS Resolution Select	Description	
Open	640 x 480 (18-bit)	
Short 1-2	800 x 600 (18-bit)	Default
Short 3-4	1024 x 768 (18-bit)	

Short 1-2 & 3-4	1024 x 768 (24-bit)	
Short 5-6	1024 x 768 (48-bit)	
Short 1-2 & 5-6	1280 x 1024 (48-bit)	
Short 3-4 & 5-6	1600 x 1200 (48-bit)	
Short 1-2 & 3-4 & 5-6	1280 x 768 (18-bit)	
Short 7-8	1280 x 800 (18-bit)	
Short 1-2 & 7-8	1366 x 768 (24-bit)	
Short 3-4 & 7-8	1440 x 900 (36-bit)	
Short 1-2 & 3-4 & 7-8	1440 x 900 (48-bit)	
Short 5-6 & 7-8	1680 X 1050 (48-bit)	
Short 1-2 & 5-6 & 7-8	1920 X 1080 (48-bit)	
Short 3-4 & 5-6 & 7-8	1920 X 1200 (48-bit)	

Table 5-6: LVDS Resolution Selection Jumper Settings

The LVDS Voltage Selection jumper location is shown in **Figure 5-12**.

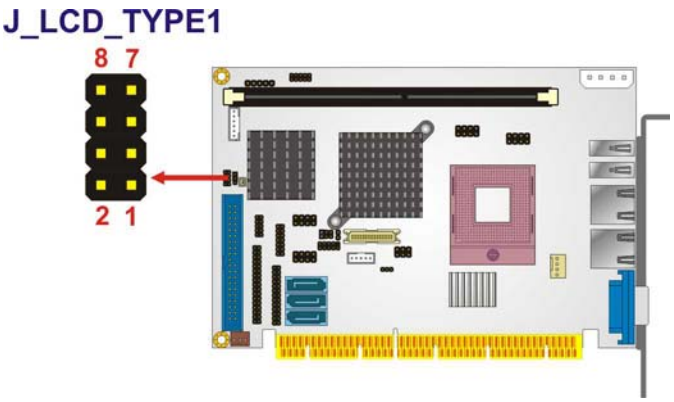


Figure 5-12: LVDS Resolution Selection Jumper Pinout Locations

5.5 Chassis Installation

5.5.1 Airflow

WARNING:

Airflow is critical to the cooling of the CPU and other onboard components. The chassis in which the PCISA-9652 must have air vents to allow cool air to move into the system and hot air to move out.

The PCISA-9652 must be installed in a chassis with ventilation holes on the sides allowing airflow to travel through the heat sink surface. In a system with an individual power supply unit, the cooling fan of a power supply can also help generate airflow through the board surface.

NOTE:

IEI has a wide range of backplanes available. Please contact your PCISA-9652 vendor, reseller or an IEI sales representative at sales@iei.com.tw or visit the IEI website (http://www.ieiworld.com.tw) to find out more about the available chassis.

5.5.2 Backplane Installation

Before the PCISA-9652 can be installed into the chassis, a backplane must first be installed. Please refer to the installation instructions that came with the backplane and the chassis to see how to install the backplane into the chassis.

NOTE:

IEI has a wide range of backplanes available. Please contact your PCISA-9652 vendor, reseller or an IEI sales representative at sales@iei.com.tw or visit the IEI website (http://www.ieiworld.com.tw) to find out more about the available chassis.

5.5.3 CPU Card Installation

To install the PCISA-9652 CPU card onto the backplane, carefully align the CPU card interface connectors with the corresponding socket on the backplane. To do this, please refer to the reference material that came with the backplane. Next, secure the CPU card to the chassis. To do this, please refer to the reference material that came with the chassis.

5.6 Internal Peripheral Device Connections

5.6.1 Peripheral Device Cables

The cables listed in **Table 5-7** are shipped with the PCISA-9652.

Quantity	Type
1	IDE cable
1	Parallel port and RS-232 cable
2	SATA drive cables
1	SATA drive power cable
1	USB cable

Table 5-7: IEI Provided Cables

Optional cables are listed below:

- Keyboard/mouse cable

- HDTV/TV cable with S-Video/Composite/Component output

5.6.2 IDE Cable Connection

The IDE flat cable connects to the PCISA-9652 to one or two IDE devices. To connect an IDE HDD to the PCISA-9652, please follow the instructions below.

Step 1: **Locate the IDE connector**. The location of the IDE device connector is shown in **Chapter 3**.

Step 2: **Insert the connector**. Connect the IDE cable connector to the onboard connector. See **Figure 5-13**. A key on the front of the cable connector ensures it can only be inserted in one direction.

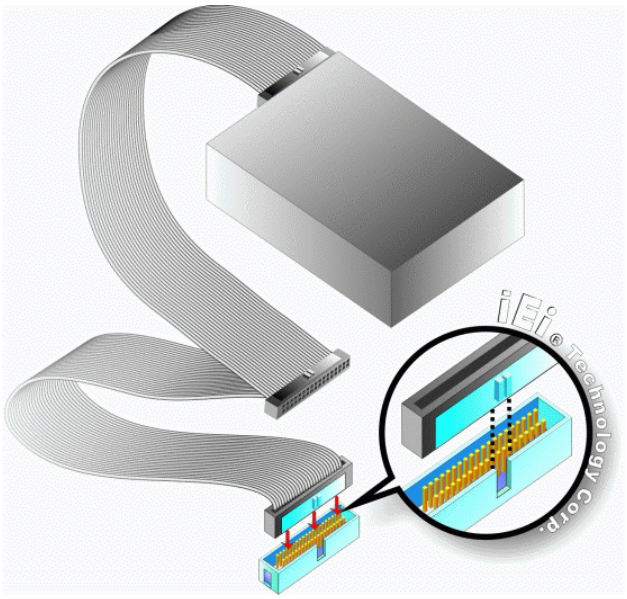


Figure 5-13: IDE Cable Connection

Step 3: **Connect the cable to an IDE device**. Connect the two connectors on the other side of the cable to one or two IDE devices. Make sure that pin 1 on the cable corresponds to pin 1 on the connector.

5.6.3 SATA Drive Connection

The PCISA-9652 is shipped with two SATA drive cables and one SATA drive power cable. To connect the SATA drives to the connectors, please follow the steps below.

Step 1: **Locate the connectors**. The locations of the SATA drive connectors are shown in **Chapter 3**.

Step 2: **Insert the cable connector**. Press the clip on the connector at the end of the SATA cable and insert the cable connector into the onboard SATA drive connector. See **Figure 5-14**.

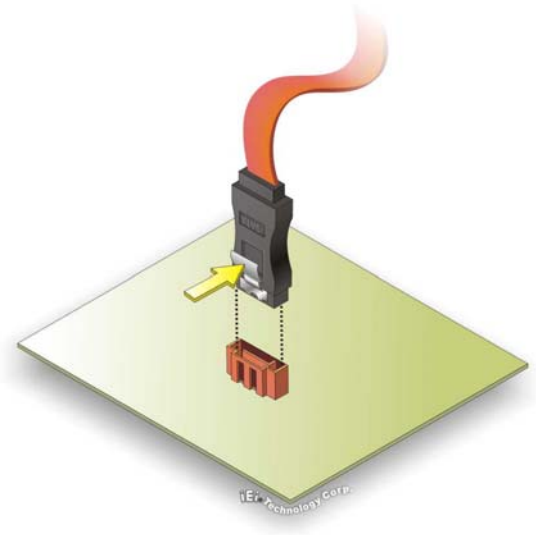


Figure 5-14: SATA Drive Cable Connection

Step 3: **Connect the cable to the SATA disk**. Connect the connector on the other end of the cable to the connector at the back of the SATA drive. See **Figure 5-15**.

Step 4: **Connect the SATA power cable**. Connect the SATA power connector to the back of the SATA drive. See **Figure 5-15**.

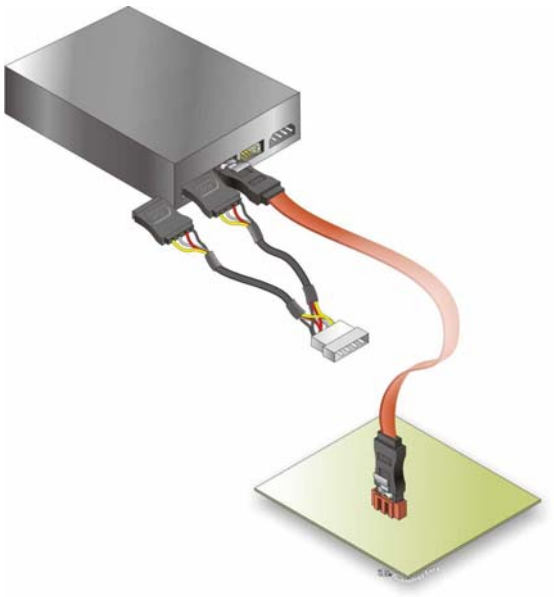


Figure 5-15: SATA Power Drive Connection

5.6.4 USB Cable (Dual Port) with Slot Bracket

The PCISA-9653 can be shipped with a dual port USB 2.0 cable. To connect the USB cable connector, please follow the steps below.

Step 1: **Locate the connectors**. The locations of the USB connectors are shown in **Chapter 3**.

WARNING:

If the USB pins are not properly aligned, the USB device can burn out.

Step 2: **Align the connectors**. The cable has two connectors. Correctly align pin 1on each cable connector with pin 1 on the PCISA-9652 USB connector.

Step 3: **Insert the cable connectors** Once the cable connectors are properly aligned with the USB connectors on the PCISA-9652, connect the cable connectors to

the onboard connectors. See **Figure 5-16**.

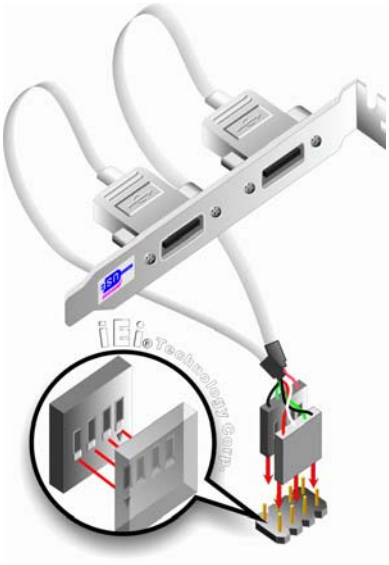


Figure 5-16: Dual USB Cable Connection

Step 4: **Attach the bracket to the chassis**. The USB 2.0 connectors are attached to a bracket. To secure the bracket to the chassis please refer to the installation instructions that came with the chassis.

5.6.5 7.1 Channel Audio Kit Installation (Optional)

NOTE:

This is an optional item that must be ordered separately. For further information please contact the nearest PCISA-9652 distributor, reseller or vendor or contact an iEi sales representative directly. Send any queries to sales@iei.com.tw.

The optional 7.1 channel audio kit connects to the 10-pin audio connector on the PCISA-9652. The audio kit consists of five audio jacks. One audio jack, Mic In, connects to a microphone. The remaining four audio jacks, Line-In, Front-Out, Rear-Out, and

Center Subwoofer, connect to speakers. To install the audio kit, please refer to the steps below:

Step 1: **Connect the audio kit cable.** The audio kit is shipped with a cable that connects the audio kit to the PCISA-9652. Connect the cable to the connector on the back of the audio kit. Make sure the pins are properly aligned (i.e. pin 1 connects to pin 1).

Step 2: **Locate the audio connector**. The location of the 10-pin audio connector is shown in **Chapter 3**.

Step 3: **Align pin 1**. Align pin 1 on the on-board connector with pin 1 on the audio kit cable connector. Pin 1 on the audio kit cable connector is indicated with a white dot. See **Figure 5-17**.

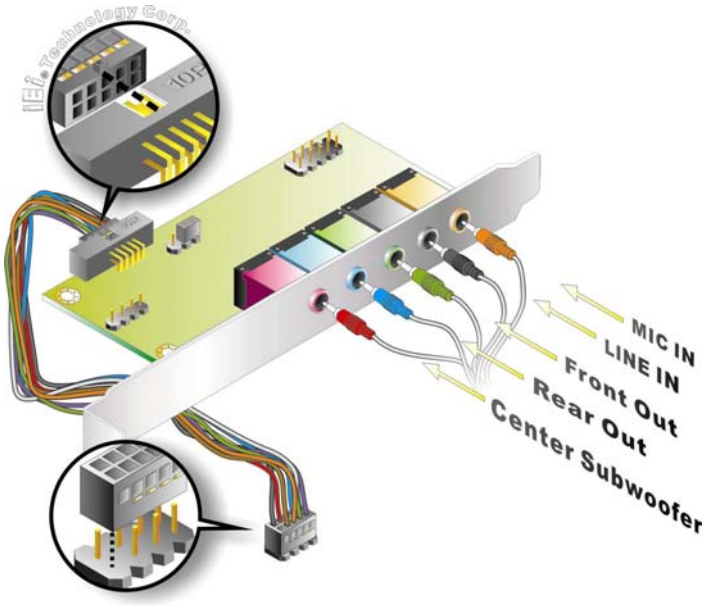


Figure 5-17: 7.1 Channel Audio Kit

Step 4: **Mount the audio kit onto the chassis**. Once the audio kit is connected to the PCISA-9652, secure the audio kit bracket to the system chassis.

Step 5: **Connect the audio devices**. Connect one speaker to the line-in audio jack, one speaker to the line-out audio jack and a microphone to the mic-in audio jack.

Step 6: **Install the driver**. If the 7.1 channel audio kit is used, the ALC883 Realtek codec driver must be installed. Refer to **Chapter 7** for driver installation instructions.

5.7 External Peripheral Interface Connection

The following external peripheral devices can be connected to the external peripheral interface connectors.

- RJ-45 Ethernet cables
- USB devices
- VGA monitor

To install these devices, connect the corresponding cable connector from the actual device to the corresponding PCISA-9652 external peripheral interface connector making sure the pins are properly aligned.

5.7.1 LAN Connection (Single Connector)

There are two external RJ-45 LAN connectors. The RJ-45 connectors enable connection to an external network. To connect a LAN cable with an RJ-45 connector, please follow the instructions below.

Step 1: **Locate the RJ-45 connectors**. The locations of the USB connectors are shown in **Chapter 4**.

Step 2: **Align the connectors.** Align the RJ-45 connector on the LAN cable with one of the RJ-45 connectors on the PCISA-9652. See **Figure 5-18**.

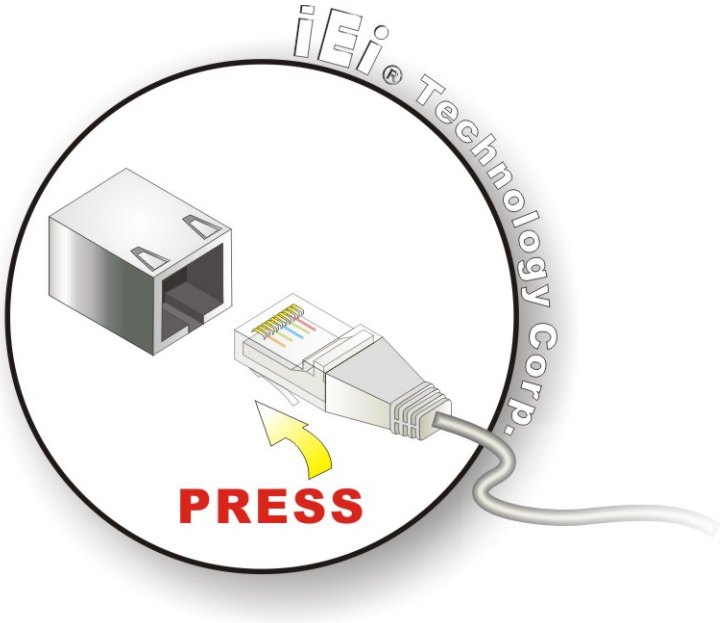


Figure 5-18: LAN Connection

Step 3: **Insert the LAN cable RJ-45 connector.** Once aligned, gently insert the LAN cable RJ-45 connector into the on-board RJ-45 connector.

5.7.2 VGA Monitor Connection

The PCISA-9652 has a single female DB-15 connector on the external peripheral interface panel. The DB-15 connector is connected to a CRT or VGA monitor. To connect a monitor to the PCISA-9652, please follow the instructions below.

Step 1: **Locate the female DB-15 connector**. The location of the female DB-15 connector is shown in **Chapter 3**.

Step 2: **Align the VGA connector**. Align the male DB-15 connector on the VGA screen cable with the female DB-15 connector on the external peripheral interface.

Step 3: **Insert the VGA connector** Once the connectors are properly aligned with the insert the male connector from the VGA screen into the female connector on the PCISA-9652. See **Figure 5-19**.

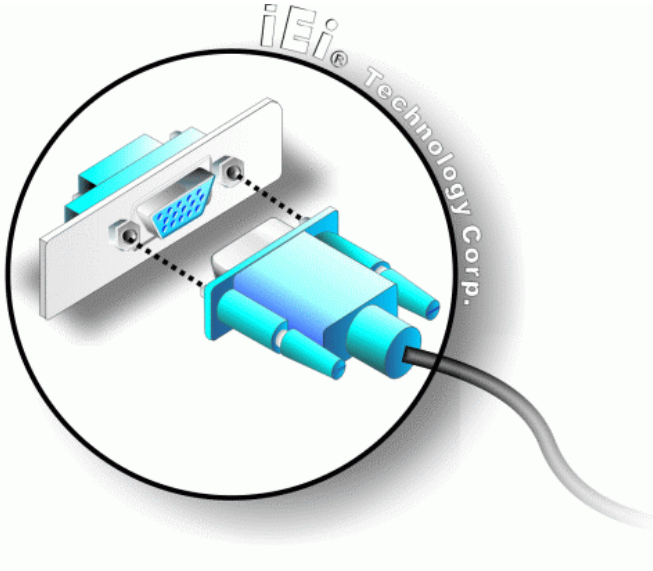


Figure 5-19: VGA Connector

Step 4: **Secure the connector**. Secure the DB-15 VGA connector from the VGA monitor to the external interface by tightening the two retention screws on either side of the connector.

5.7.3 USB Device Connection (Single Connector)

There are two external USB 2.0 connectors. Both connectors are perpendicular to the PCISA-9652. To connect a USB 2.0 or USB 1.1 device, please follow the instructions below.

Step 1: **Located the USB connectors**. The locations of the USB connectors are shown in **Chapter 4**.

Step 2: **Align the connectors.** Align the USB device connector with one of the connectors on the PCISA-9652. See **Figure 5-20**.

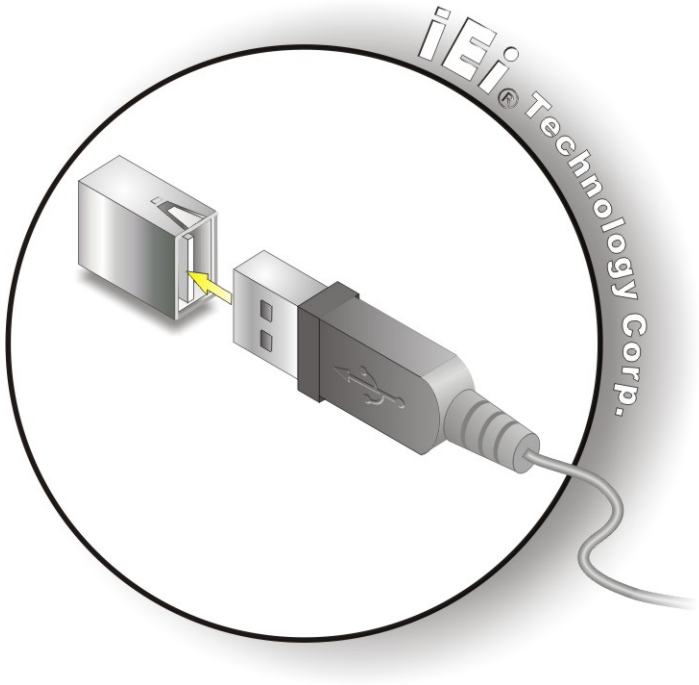


Figure 5-20: USB Device Connection

Step 3: **Insert the device connector.** Once aligned, gently insert the USB device connector into the on-board connector.

Chapter

6

AMI BIOS

6.1 Introduction

A licensed copy of AMI BIOS is preprogrammed into the ROM BIOS. The BIOS setup program allows users to modify the basic system configuration. This chapter describes how to access the BIOS setup program and the configuration options that may be changed.

6.1.1 Starting Setup

The AMI BIOS is activated when the computer is turned on. The setup program can be activated in one of two ways.

1. Press the **DELETE** key as soon as the system is turned on or
2. Press the **DELETE** key when the "**Press Del to enter SETUP**" message appears on the screen.

If the message disappears before the **DELETE** key is pressed, restart the computer and try again.

6.1.2 Using Setup

Use the arrow keys to highlight items, press **ENTER** to select, use the PageUp and PageDown keys to change entries, press **F1** for help and press **ESC** to quit. Navigation keys are shown in.

Key	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left hand side
Right arrow	Move to the item on the right hand side
Esc key	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
Page Up key	Increase the numeric value or make changes
Page Dn key	Decrease the numeric value or make changes

F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 /F3 key	Change color from total 16 colors. F2 to select color forward.
F10 key	Save all the CMOS changes, only for Main Menu

Table 6-1: BIOS Navigation Keys

6.1.3 Getting Help

When **F1** is pressed a small help window describing the appropriate keys to use and the possible selections for the highlighted item appears. To exit the Help Window press **Esc** or the **F1** key again.

6.1.4 Unable to Reboot After Configuration Changes

If the computer cannot boot after changes to the system configuration is made, CMOS defaults. Use the jumper described in Chapter **5**.

6.1.5 BIOS Menu Bar

The **menu bar** on top of the BIOS screen has the following main items:

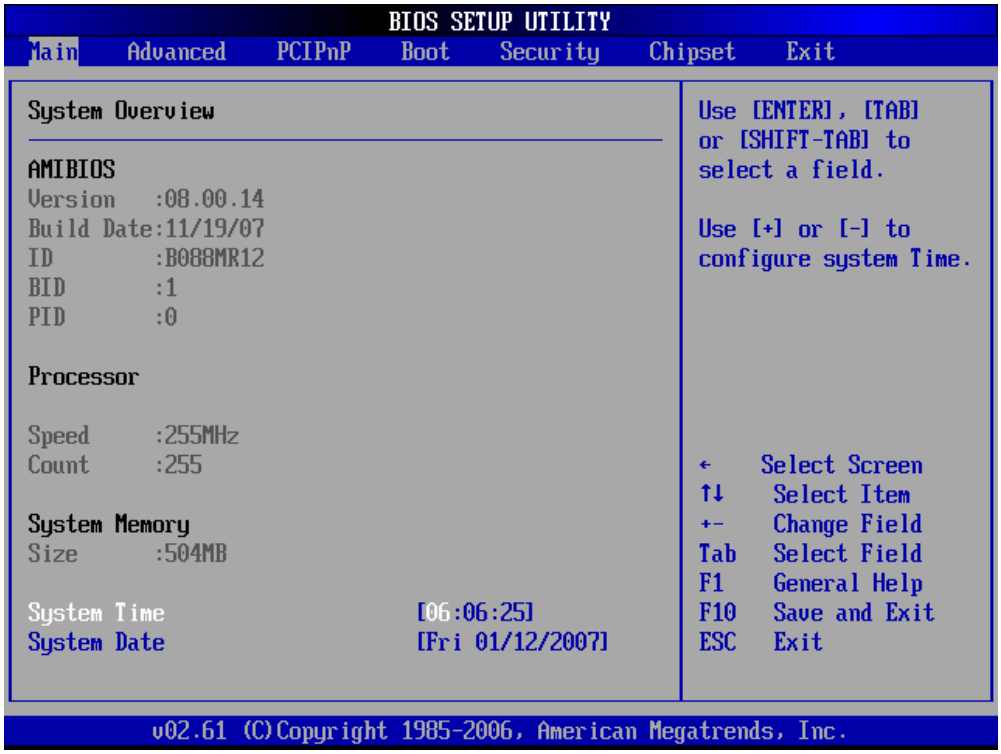
- **Main** Changes the basic system configuration.
- **Advanced** Changes the advanced system settings.
- **PCIPnP** Changes the advanced PCI/PnP Settings
- **Boot** Changes the system boot configuration.
- **Security** Sets User and Supervisor Passwords.
- **Chipset** Changes the chipset settings.
- **Exit** Selects exit options and loads default settings

The following sections completely describe the configuration options found in the menu items at the top of the BIOS screen and listed above.

6.2 Main

The **Main** BIOS menu (**BIOS Menu 1**) appears when the **BIOS Setup** program is entered.

The **Main** menu gives an overview of the basic system information.



BIOS Menu 1: Main

➔ System Overview

The **System Overview** lists a brief summary of different system components. The fields in **System Overview** cannot be changed. The items shown in the system overview include:

- **AMI BIOS**: Displays auto-detected BIOS information
  - **Version**: Current BIOS version
  - **Build Date**: Date the current BIOS version was made
  - **ID**: Installed BIOS ID
- **Processor**: Displays auto-detected CPU specifications
  - **Type**: Names the currently installed processor
  - **Speed**: Lists the processor speed

- **Count**: The number of CPUs on the motherboard

- **System Memory**: Displays the auto-detected system memory.
  - **Size**: Lists memory size

The System Overview field also has two user configurable fields:

➔ **System Time [xx:xx:xx]**

Use the **System Time** option to set the system time. Manually enter the hours, minutes and seconds.

➔ **System Date [xx/xx/xx]**

Use the **System Date** option to set the system date. Manually enter the day, month and year.

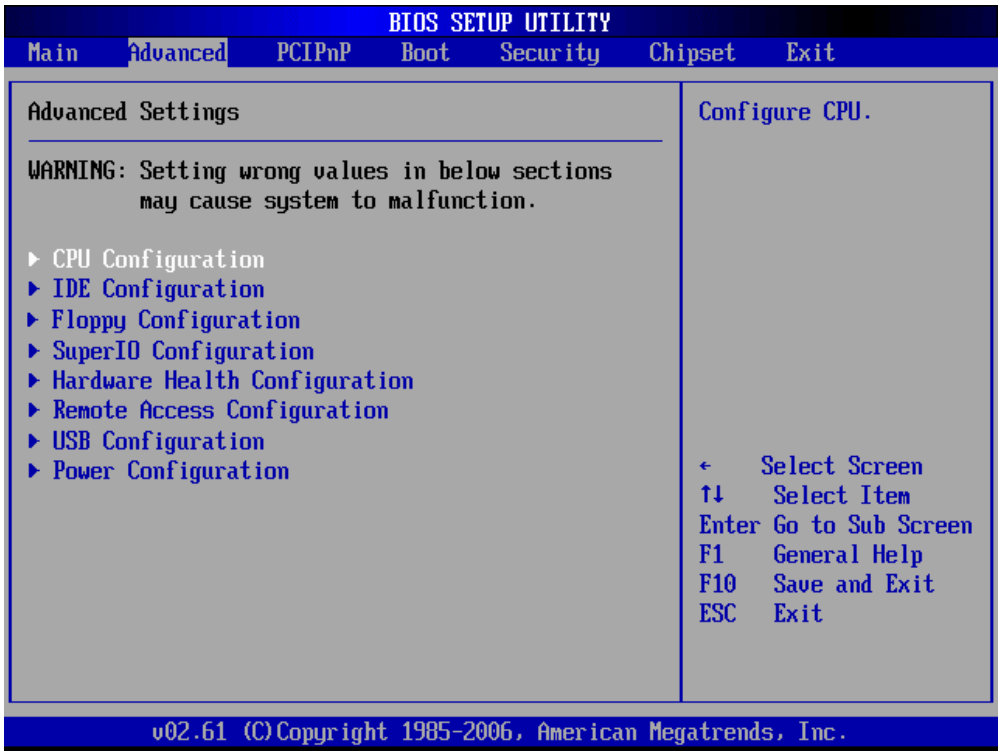
6.3 Advanced

Use the **Advanced** menu (**BIOS Menu 2**) to configure the CPU and peripheral devices through the following sub-menus:

WARNING!

Setting the wrong values in the sections below may cause the system to malfunction. Make sure that the settings made are compatible with the hardware.

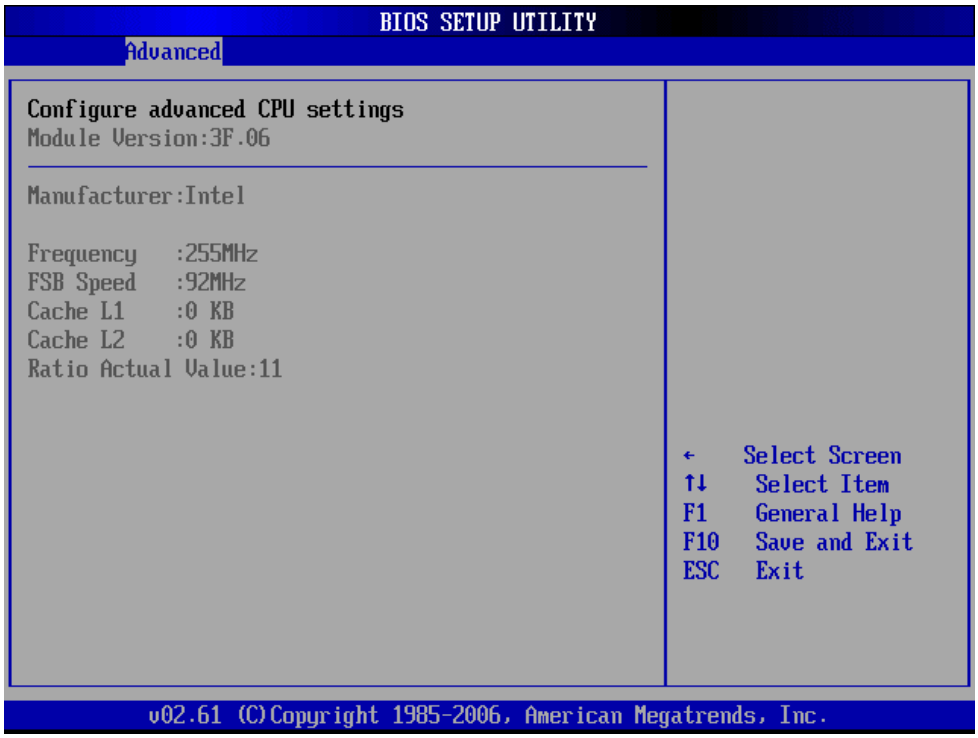
- CPU Configuration (see **Section 6.3.1**)
- IDE Configuration (see **Section 6.3.2**)
- Floppy Configuration (see **Section 6.3.3**)
- Super IO Configuration (see **Section 6.3.4**)
- Hardware Health Configuration (see **Section 6.3.5**)
- Remote Access Configuration (see **Section 6.3.6**)
- USB Configuration (see **Section 6.3.7**)
- Power Configuration (see **Section 6.3.8**)



BIOS Menu 2: Advanced

6.3.1 CPU Configuration

Use the **CPU Configuration** menu (**BIOS Menu 3**) to view detailed CPU specifications and configure the CPU.



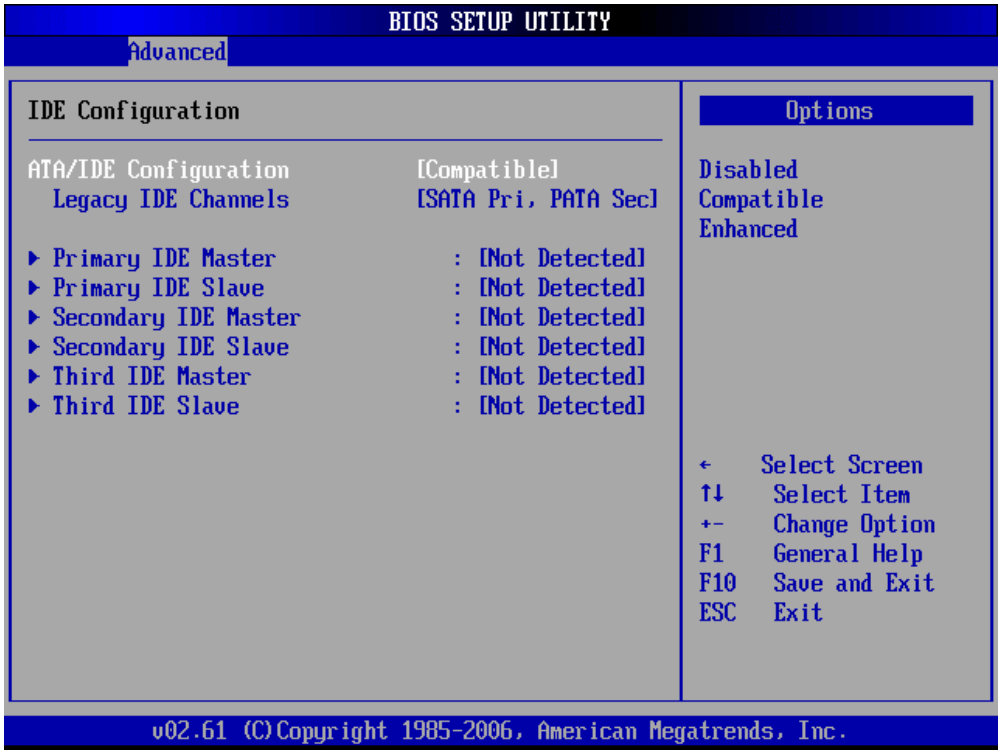
BIOS Menu 3: CPU Configuration

The CPU Configuration menu (**BIOS Menu 3**) lists the following CPU details:

- **Manufacturer**: Lists the name of the CPU manufacturer
- **Brand String**: Lists the brand name of the CPU being used
- **Frequency:** Lists the CPU processing speed
- **FSB Speed**: Lists the FSB speed
- **Cache L1**: Lists the CPU L1 cache size
- **Cache L2**: Lists the CPU L2 cache size

6.3.2 IDE Configuration

Use the **IDE Configuration** menu (**BIOS Menu 4**) to change and/or set the configuration of the IDE devices installed in the system.



BIOS Menu 4: IDE Configuration

➔ **ATA/IDE Configurations [Compatible]**

Use the **ATA/IDE Configurations** option to configure the ATA/IDE controller.

➔ **Disabled** Disables the on-board ATA/IDE controller.

➔ **Compatible** **DEFAULT** Configures the on-board ATA/IDE controller to be in compatible mode. In this mode, a SATA channel will replace one of the IDE channels. This mode supports up to 4 storage devices.

➔ **Enhanced** Configures the on-board ATA/IDE controller to be in Enhanced mode. In this mode, IDE channels and SATA channels are separated. This mode supports up to 6 storage devices. Some legacy OS do not support this mode.

➔ **Legacy IDE Channels [SATA Pri, PATA Sec]**

- ➔ **SATA Only**
- ➔ **SATA Pri., PATA Sec** **DEFAULT**
- ➔ **PATA Only**

➔ **IDE Master and IDE Slave**

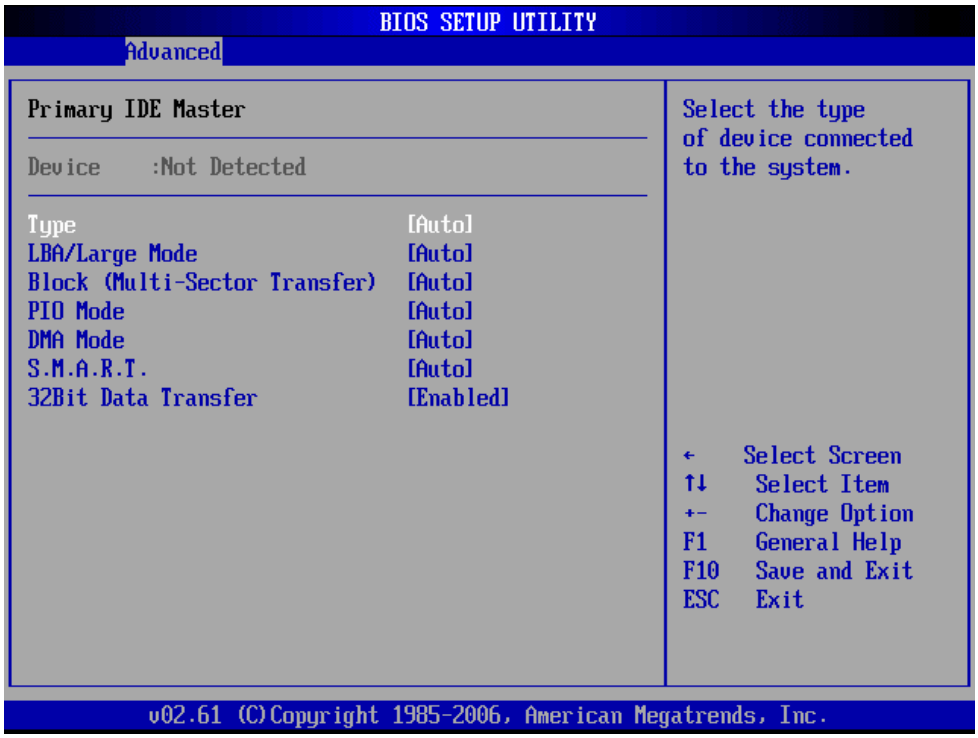
When entering setup, BIOS auto detects the presence of IDE devices. BIOS displays the status of the auto detected IDE devices. The following IDE devices are detected and are shown in the **IDE Configuration** menu:

- Primary IDE Master
- Primary IDE Slave
- Secondary IDE Master
- Secondary IDE Slave
- Third IDE Master
- Third IDE Slave

The **IDE Configuration** menu (**BIOS Menu 4**) allows changes to the configurations for the IDE devices installed in the system. If an IDE device is detected, and one of the above listed four BIOS configuration options are selected, the IDE configuration options shown in **Section 6.3.2.1** appear.

6.3.2.1 IDE Master, IDE Slave

Use the **IDE Master** and **IDE Slave** configuration menu to view both primary and secondary IDE device details and configure the IDE devices connected to the system.



BIOS Menu 5: IDE Master and IDE Slave Configuration

➔ **Type [Auto]**

Use the **Type** BIOS option select the type of device the AMIBIOS attempts to boot from after the Power-On Self-Test (POST) is complete.

➔ **Not Installed** BIOS is prevented from searching for an IDE disk drive on the specified channel.

➔ **Auto** **DEFAULT** The BIOS auto detects the IDE disk drive type attached to the specified channel. This setting should be used if an IDE hard disk drive is attached to the specified channel.

➔ **CD/DVD** The CD/DVD option specifies that an IDE CD-ROM drive is attached to the specified IDE channel. The BIOS does not attempt to search for other types of

IDE disk drives on the specified channel.

➔ **ARMD**

This option specifies an ATAPI Removable Media Device. These include, but are not limited to:

- ➔ **ZIP**
- ➔ **LS-120**

➔ **LBA/Large Mode [Auto]**

Use the **LBA/Large Mode** option to disable or enable BIOS to auto detects LBA (Logical Block Addressing). LBA is a method of addressing data on a disk drive. In LBA mode, the maximum drive capacity is 137 GB.

➔ **Disabled** BIOS is prevented from using the LBA mode control on the specified channel.

➔ **Auto** **DEFAULT** BIOS auto detects the LBA mode control on the specified channel.

➔ **Block (Multi Sector Transfer) [Auto]**

Use the **Block (Multi Sector Transfer)** to disable or enable BIOS to auto detect if the device supports multi-sector transfers.

➔ **Disabled** BIOS is prevented from using Multi-Sector Transfer on the specified channel. The data to and from the device occurs one sector at a time.

➔ **Auto** **DEFAULT** BIOS auto detects Multi-Sector Transfer support on the drive on the specified channel. If supported the data transfer to and from the device occurs multiple sectors at a time.

➔ **PIO Mode [Auto]**

Use the **PIO Mode** option to select the IDE PIO (Programmable I/O) mode program timing cycles between the IDE drive and the programmable IDE controller. As the PIO mode increases, the cycle time decreases.

➔ **Auto**	**DEFAULT**	BIOS auto detects the PIO mode. Use this value if the IDE disk drive support cannot be determined.
➔ **0**		PIO mode 0 selected with a maximum transfer rate of 3.3MBps
➔ **1**		PIO mode 1 selected with a maximum transfer rate of 5.2MBps
➔ **2**		PIO mode 2 selected with a maximum transfer rate of 8.3MBps
➔ **3**		PIO mode 3 selected with a maximum transfer rate of 11.1MBps
➔ **4**		PIO mode 4 selected with a maximum transfer rate of 16.6MBps (This setting generally works with all hard disk drives manufactured after 1999. For other disk drives, such as IDE CD-ROM drives, check the specifications of the drive.)

➔ **DMA Mode [Auto]**

Use the **DMA Mode** BIOS selection to adjust the DMA mode options.

➔ **Auto**	**DEFAULT**	BIOS auto detects the DMA mode. Use this value if the IDE disk drive support cannot be determined.
➔ **SWDMA0**		Single Word DMA mode 0 selected with a maximum data transfer rate of 2.1MBps
➔ **SWDMA1**		Single Word DMA mode 1 selected with a maximum data transfer rate of 4.2MBps
➔ **SWDMA2**		Single Word DMA mode 2 selected with a maximum data transfer rate of 8.3MBps

- **MWDMA0** Multi Word DMA mode 0 selected with a maximum data transfer rate of 4.2MBps
- **MWDMA1** Multi Word DMA mode 1 selected with a maximum data transfer rate of 13.3MBps
- **MWDMA2** Multi Word DMA mode 2 selected with a maximum data transfer rate of 16.6MBps
- **UDMA1** Ultra DMA mode 0 selected with a maximum data transfer rate of 16.6MBps
- **UDMA1** Ultra DMA mode 1 selected with a maximum data transfer rate of 25MBps
- **UDMA2** Ultra DMA mode 2 selected with a maximum data transfer rate of 33.3MBps
- **UDMA3** Ultra DMA mode 3 selected with a maximum data transfer rate of 44MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)
- **UDMA4** Ultra DMA mode 4 selected with a maximum data transfer rate of 66.6MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)
- **UDMA5** Ultra DMA mode 5 selected with a maximum data transfer rate of 99.9MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)

➔ **S.M.A.R.T [Auto]**

Use the **S.M.A.R.T** option to auto-detect, disable or enable Self-Monitoring Analysis and Reporting Technology (SMART) on the drive on the specified channel. **S.M.A.R.T** predicts impending drive failures. The **S.M.A.R.T** BIOS option enables or disables this function.

➔ **Auto** **DEFAULT** BIOS auto detects HDD SMART support.

➔ **Disabled** Prevents BIOS from using the HDD SMART feature.

➔ **Enabled** Allows BIOS to use the HDD SMART feature

➔ **32Bit Data Transfer [Enabled]**

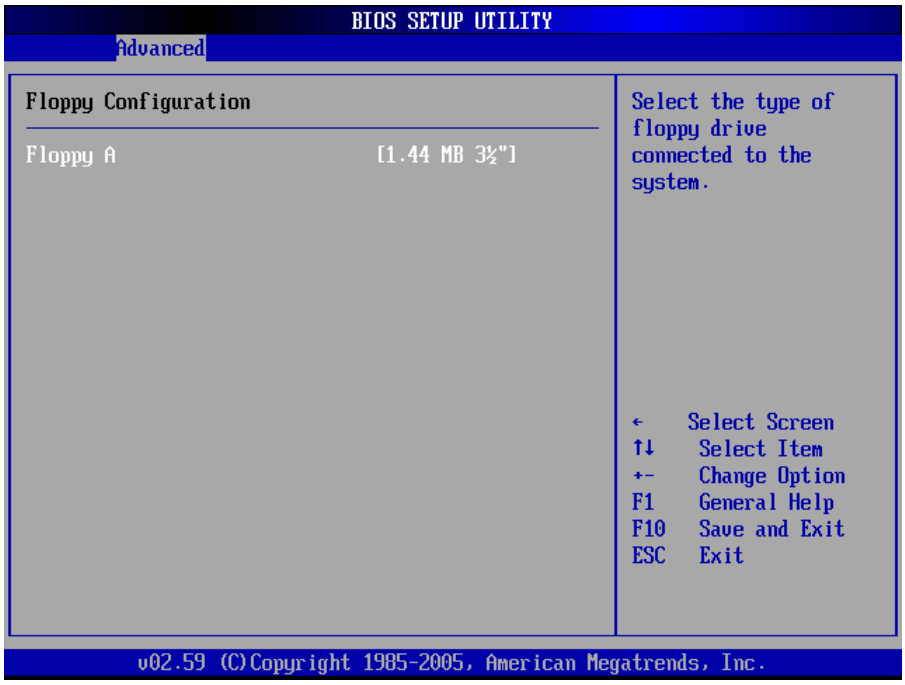
Use the **32Bit Data Transfer** BIOS option to enables or disable 32-bit data transfers.

➔ **Disabled** Prevents the BIOS from using 32-bit data transfers.

➔ **Enabled** **DEFAULT** Allows BIOS to use 32-bit data transfers on supported hard disk drives.

6.3.3 Floppy Configuration

Use the **Floppy Configuration menu** to configure the floppy disk drive connected to the system.



BIOS Menu 6: IDE Master and IDE Slave Configuration

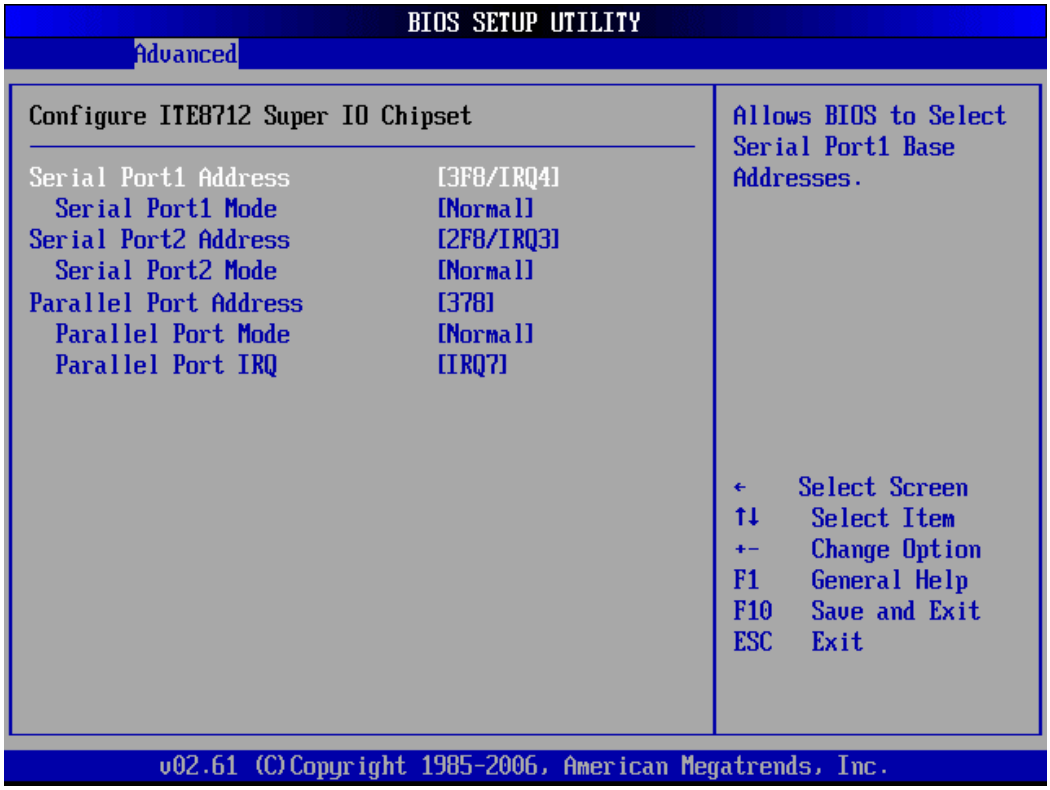
➔ **Floppy A**

Use the **Floppy A** option to configure the floppy disk drive. Options are listed below:

- Disabled
- 360 KB 51/4”
- 1.2 MB 51/4”
- 720 KB 31/2”
- 1.44 MB 31/2’
- 2.88 MB 31/2”

6.3.4 Super IO Configuration

Use the **Super IO Configuration** menu (**BIOS Menu 7**) to set or change the configurations for the FDD controllers, parallel ports and serial ports.



BIOS Menu 7: Super IO Configuration

➔ **Serial Port1 Address [3F8/IRQ4]**

Use the **Serial Port1 Address** option to select the Serial Port 1 base address.

➔ **Disabled**		No base address is assigned to Serial Port 1
➔ **3F8/IRQ4**	**DEFAULT**	Serial Port 1 I/O port address is 3F8 and the interrupt address is IRQ4
➔ **3E8/IRQ4**		Serial Port 1 I/O port address is 3E8 and the interrupt address is IRQ4
➔ **2E8/IRQ3**		Serial Port 1 I/O port address is 2E8 and the interrupt address is IRQ3

➔ **Serial Port1 Mode [Normal]**

Use the **Serial Port1 Mode** option to select the transmitting and receiving mode for the first serial port.

➔ **Normal**	**DEFAULT**	Serial Port 1 mode is normal
➔ **IrDA**		Serial Port 1 mode is IrDA
➔ **ASK IR**		Serial Port 1 mode is ASK IR

➔ **Serial Port2 Address [2F8/IRQ3]**

Use the **Serial Port2 Address** option to select the Serial Port 2 base address.

➔ **Disabled**		No base address is assigned to Serial Port 2
➔ **2F8/IRQ3**	**DEFAULT**	Serial Port 2 I/O port address is 3F8 and the interrupt address is IRQ3
➔ **3E8/IRQ4**		Serial Port 2 I/O port address is 3E8 and the interrupt address is IRQ4

➔ **2E8/IRQ3** Serial Port 2 I/O port address is 2E8 and the interrupt address is IRQ3

➔ **Serial Port2 Mode [Normal]**

Use the **Serial Port2 Mode** option to select the Serial Port2 operational mode.

➔ **Normal** **DEFAULT** Serial Port 2 mode is normal

➔ **IrDA** Serial Port 2 mode is IrDA

➔ **ASK IR** Serial Port 2 mode is ASK IR

➔ **Parallel Port Address [378]**

Use the **Parallel Port Address** option to select the parallel port base address.

➔ **Disabled** No base address is assigned to the Parallel Port

➔ **378** **DEFAULT** Parallel Port I/O port address is 378

➔ **278** Parallel Port I/O port address is 278

➔ **3BC** Parallel Port I/O port address is 3BC

➔ **Parallel Port Mode [Normal]**

Use the **Parallel Port Mode** option to select the mode the parallel port operates in.

➔ **Normal** **DEFAULT** The normal parallel port mode is the standard mode for parallel port operation.

➔ **EPP** The parallel port operates in the enhanced parallel port mode (EPP). The EPP mode supports bi-directional communication between the system and the parallel port device and the transmission rates between the two are much faster than the

Normal mode.

➔ **ECP** The parallel port operates in the extended capabilities port (ECP) mode. The ECP mode supports bi-directional communication between the system and the parallel port device and the transmission rates between the two are much faster than the Normal mode

➔ **EPP+ECP** The parallel port is compatible with both EPP and ECP devices described above

➔ **Parallel Port IRQ [IRQ7]**

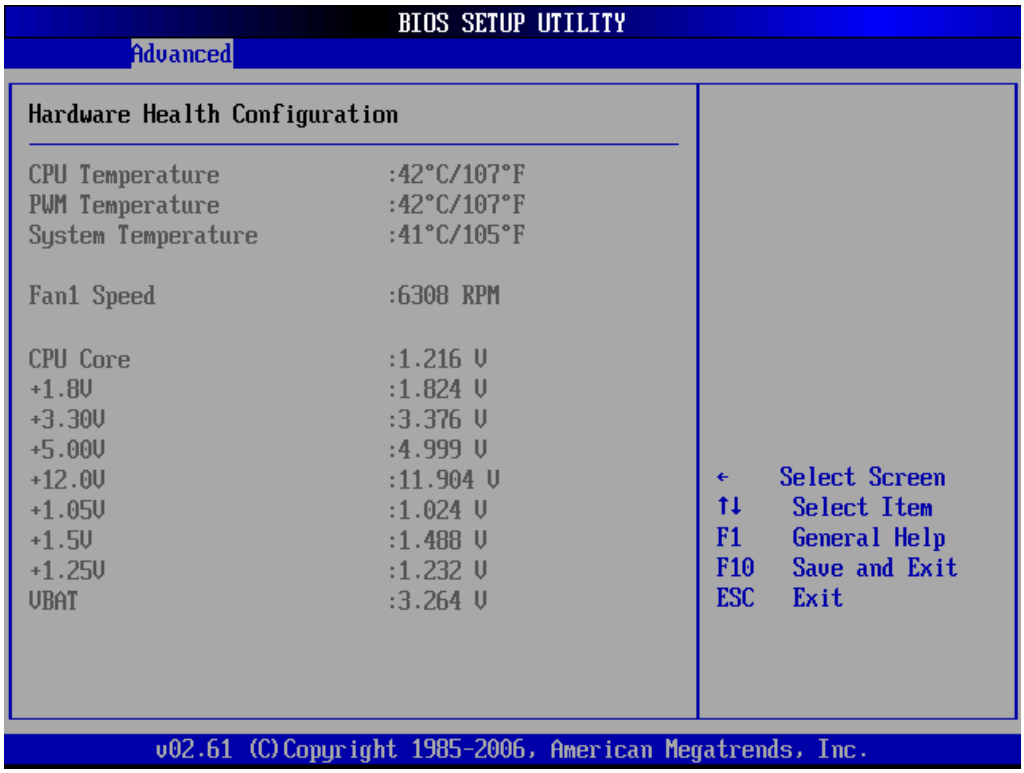
Use the **Parallel Port IRQ** selection to set the parallel port interrupt address.

➔ **IRQ5** IRQ5 is assigned as the parallel port interrupt address

➔ **IRQ7** **DEFAULT** IRQ7 is assigned as the parallel port interrupt address

6.3.5 Hardware Health Configuration

The **Hardware Health Configuration** menu (**BIOS Menu 8**) shows the operating temperature, fan speeds and system voltages.



BIOS Menu 8: Hardware Health Configuration

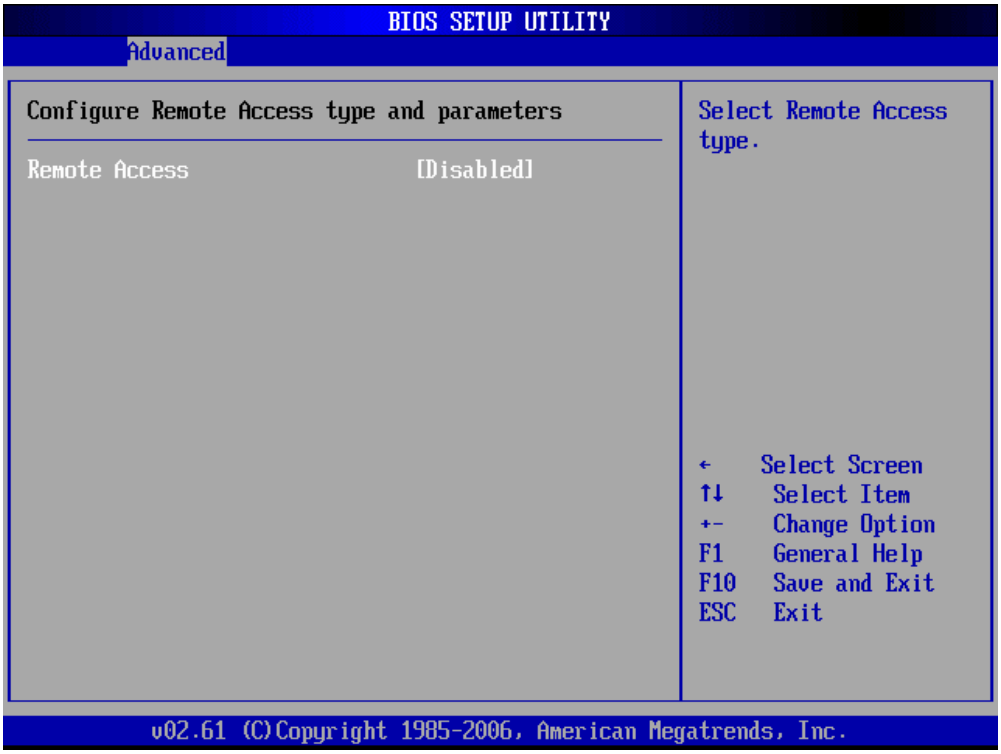
The following system parameters and values are shown. The system parameters that are monitored are:

- **System Temperatures**: The following system temperatures are monitored
  - CPU Temperature
  - PWM Temperature
  - System Temperature
- **Fan Speeds**: The CPU cooling fan speed is monitored.
  - Fan1 Speed
- **Voltages**: The following system voltages are monitored
  - CPU Core
  - +1.8V
  - +3.30V
  - +5.00V
  - +12.0V

- +1.05V
- +1.5V
- +1.25V
- VBAT

6.3.6 Remote Access Configuration

Use the **Remote Access Configuration** menu (**BIOS Menu 9**) to configure remote access parameters. The **Remote Access Configuration** is an AMIBIOS feature and allows a remote host running a terminal program to display and configure the BIOS settings.



BIOS Menu 9: Remote Access Configuration [Advanced]

➔ **Remote Access [Disabled]**

Use the **Remote Access** option to enable or disable access to the remote functionalities of the system.

➔ **Disabled** **DEFAULT** Remote access is disabled.

➔ **Enabled** Remote access configuration options shown below appear:

- ➔ **Serial Port Number**
- ➔ **Serial Port Mode**
- ➔ **Redirection after BIOS POST**
- ➔ **Terminal Type**

These configuration options are discussed below.

➔ **Serial Port Number [COM1]**

Use the **Serial Port Number** option allows users to select the serial port used for remote access.

➔ **COM1** **DEFAULT** System is remotely accessed through COM1

➔ **COM2** System is remotely accessed through COM2

NOTE: Make sure the selected COM port is enabled through the Super I/O configuration menu.

➔ **Base Address, IRQ [3F8h,4]**

The **Base Address, IRQ** option cannot be configured and only shows the interrupt address of the serial port listed above.

➔ **Serial Port Mode [115200 8,n,1]**

Use the **Serial Port Mode** option to select baud rate through which the console redirection is made. The following configuration options are available

- 115200 8,n,1 **DEFAULT**
- 57600 8,n,1

- 38400 8,n,1
- 19200 8,n,1
- 09600 8,n,1

NOTE:

Identical baud rate setting musts be set on the host (a management computer running a terminal software) and the slave

➔ **Redirection After BIOS POST [Always]**

Use the **Redirection After BIOS POST** option to specify when console redirection should occur.

➔ **Disabled**		The console is not redirected after POST
➔ **Boot Loader**		Redirection is active during POST and during Boot Loader
➔ **Always**	**DEFAULT**	Redirection is always active (Some OSes may not work if set to Always)

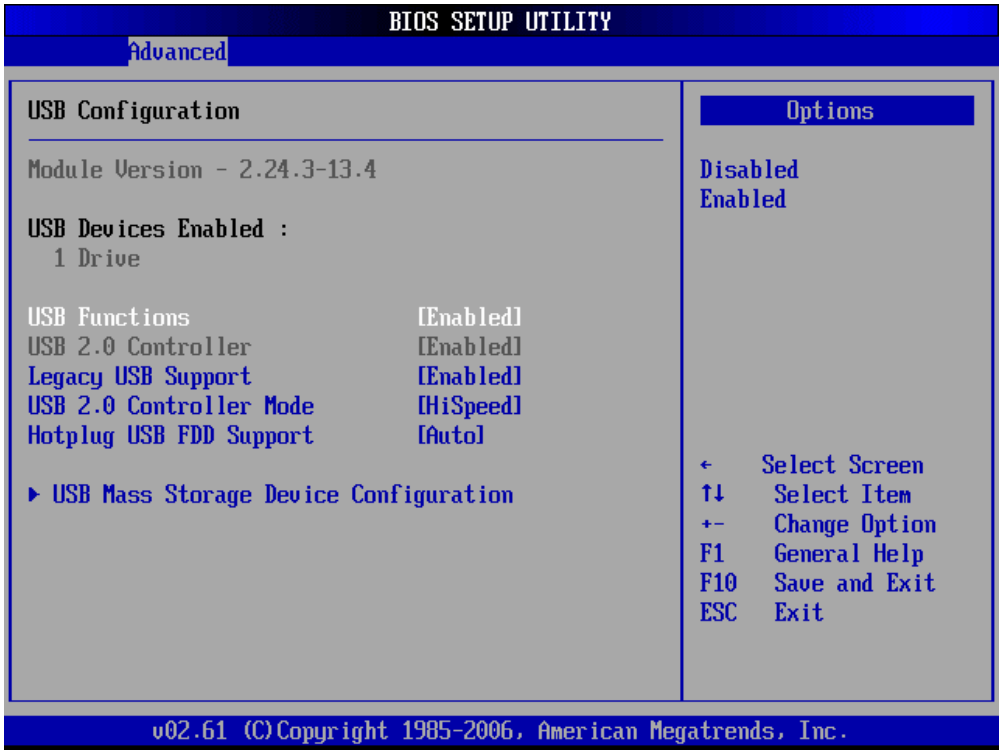
➔ **Terminal Type [ANSI]**

Use the **Terminal Type** BIOS option to specify the remote terminal type.

➔ **ANSI**	**DEFAULT**	The target terminal type is ANSI
➔ **VT100**		The target terminal type is VT100
➔ **VT-UTF8**		The target terminal type is VT-UTF8

6.3.7 USB Configuration

Use the **USB Configuration** menu (**BIOS Menu 10**) to read USB configuration information and configure the USB settings.



BIOS Menu 10: USB Configuration

➔ USB Configuration

The **USB Configuration** field shows the system USB configuration. The items listed are:

- Module Version: x.xxxxx.xxxxx

➔ USB Devices Enabled

The **USB Devices Enabled** field lists the USB devices that are enabled on the system

➔ USB Function [Enabled]

Use the **USB Function** BIOS option to enable or disable the USB function.

➔ **Disabled**		USB function support disabled
➔ **Enabled**	**DEFAULT**	USB function support enabled

➔ **Legacy USB Support [Enabled]**

Use the **Legacy USB Support** BIOS option to enable USB mouse and USB keyboard support.

Normally if this option is not enabled, any attached USB mouse or USB keyboard does not become available until a USB compatible operating system is fully booted with all USB drivers loaded. When this option is enabled, any attached USB mouse or USB keyboard can control the system even when there is no USB driver loaded onto the system.

➔ **Disabled**		Legacy USB support disabled
➔ **Enabled**	**DEFAULT**	Legacy USB support enabled
➔ **Auto**		Legacy USB support disabled if no USB devices are connected

➔ **USB2.0 Controller Mode [HiSpeed]**

Use the **USB2.0 Controller Mode** option to set the speed of the USB2.0 controller.

➔ **FullSpeed**		The controller is capable of operating at 12Mb/s
➔ **HiSpeed**	**DEFAULT**	The controller is capable of operating at 480Mb/s

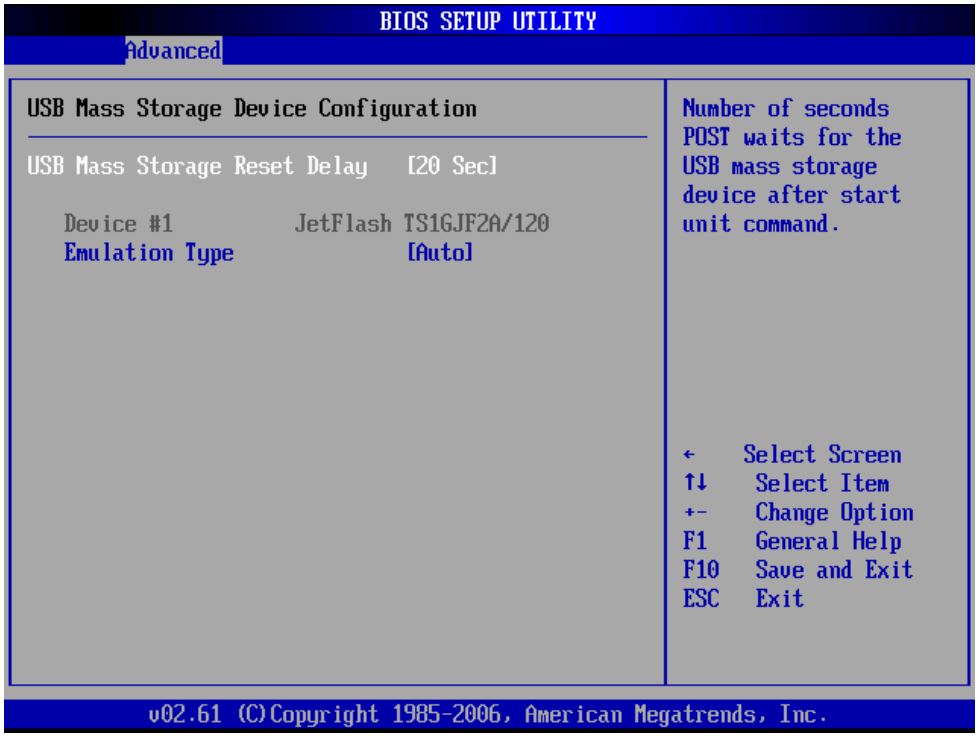
➔ **Hotplug USB FDD Support [Auto]**

Use the **Hotplug USB FDD Support** option to enable or disable USB FDD support.

➔ **Disabled**		Hot-plug USB FDD support disabled.
➔ **Enabled**		A virtual FDD drive is created and will be associated with the hotplugged FDD later.
➔ **Auto**	**DEFAULT**	A virtual FDD drive is created only if there is no USB FDD present.

6.3.7.1 USB Mass Storage Device Configuration

Use the **USB Mass Storage Device Configuration** menu (**BIOS Menu 11**) to configure USB mass storage class devices.


BIOS SETUP UTILITY
Advanced
USB Mass Storage Device Configuration
USB Mass Storage Reset Delay [20 Sec]
Device #1 JetFlash TS1GJF2A/120
Emulation Type [Auto]
Number of seconds POST waits for the USB mass storage device after start unit command.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 11: USB Mass Storage Device Configuration

➔ **USB Mass Storage Reset Delay [20 Sec]**

Use the **USB Mass Storage Reset Delay** option to set the number of seconds POST waits for the USB mass storage device after the start unit command.

➔ **10 Sec**		POST waits 10 seconds for the USB mass storage device after the start unit command.
➔ **20 Sec**	**DEFAULT**	POST waits 20 seconds for the USB mass storage device after the start unit command.
➔ **30 Sec**		POST waits 30 seconds for the USB mass storage

device after the start unit command.

➔ **40 Sec** POST waits 40 seconds for the USB mass storage device after the start unit command.

➔ **Device ##**

The **Device##** field lists the USB devices that are connected to the system.

➔ **Emulation Type [Auto]**

Use the **Emulation Type** BIOS option to specify the type of emulation BIOS has to provide for the USB device.

NOTE:

Please note that the device's formatted type and the emulation type provided by the BIOS must match for a device to boot properly. If both types do not match then device's behavior is undefined. To make sure both types match, format the device using BIOS INT13h calls after selecting the proper emulation option in BIOS setup. The FORMAT utility provided by Microsoft® MS-DOS®, Microsoft® Windows® 95, and Microsoft® Windows® 98 can be used for this purpose.

➔ **Auto** **DEFAULT** BIOS auto-detects the current USB.

➔ **Floppy** The USB device will be emulated as a floppy drive. The device can be either A: or B: responding to INT13h calls that return DL = 0 or DL = 1 respectively.

➔ **Forced FDD** Allows a hard disk image to be connected as a

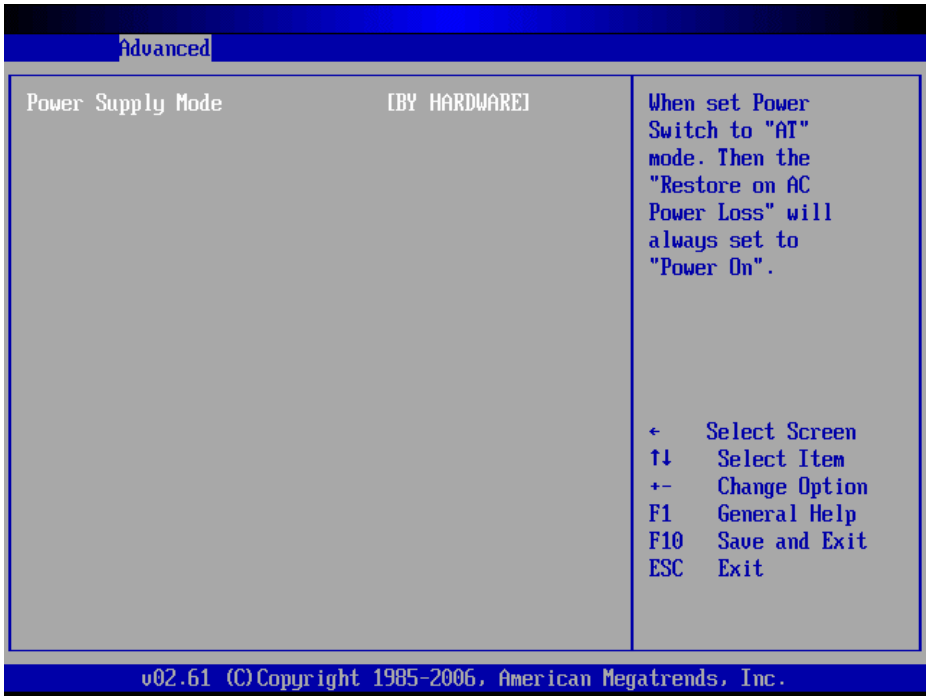
floppy image. This option works only for drives formatted with FAT12, FAT16 or FAT32.

➔ **Hard Disk** Allows the USB device to be emulated as hard disk responding to INT13h calls that return DL values of 80h or above.

➔ **CDROM** Assumes the CD-ROM is formatted as bootable media. All the devices that support block sizes greater than 512 bytes can only be booted using this option.

6.3.8 Power Configuration

Use the **Power Configuration** menu (**BIOS Menu 12**) configures the Advanced Configuration and Power Interface (ACPI) and Power Management (APM) options.


Advanced
Power Supply Mode [BY HARDWARE]
When set Power Switch to "AT" mode. Then the "Restore on AC Power Loss" will always set to "Power On".
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 12: Power Configuration

➔ **Power Supply Mode [ATX]**

Use the **Power Supply Mode** BIOS option to select the power supply that is connected to the system.

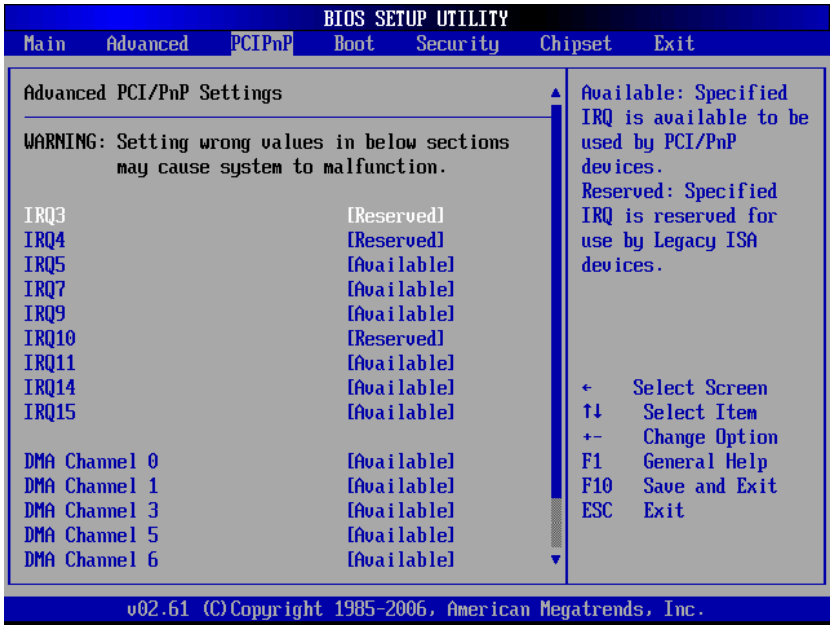
➔ **AT**		An AT power supply is connected to the system
➔ **ATX**		An ATX power supply is connected to the system
➔ **BY HARDWARE**	**DEFAULT**	The power supply mode is depends on hardware

6.4 PCI/PnP

Use the **PCI/PnP** menu (**BIOS Menu 13**) to configure advanced PCI and PnP settings.

WARNING!

Setting wrong values for the BIOS selections in the PCIPnP BIOS menu may cause the system to malfunction.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Advanced PCI/PnP Settings
WARNING: Setting wrong values in below sections may cause system to malfunction.
IRQ3 [Reserved]
IRQ4 [Reserved]
IRQ5 [Available]
IRQ7 [Available]
IRQ9 [Available]
IRQ10 [Reserved]
IRQ11 [Available]
IRQ14 [Available]
IRQ15 [Available]
DMA Channel 0 [Available]
DMA Channel 1 [Available]
DMA Channel 3 [Available]
DMA Channel 5 [Available]
DMA Channel 6 [Available]
Available: Specified IRQ is available to be used by PCI/PnP devices.
Reserved: Specified IRQ is reserved for use by Legacy ISA devices.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 13: PCI/PnP Configuration

➔ **IRQ#**

Use the **IRQ#** address to specify what IRQs can be assigned to a particular peripheral device.

➔	**Available**	The specified IRQ is available to be used by PCI/PnP devices
➔	**Reserved**	The specified IRQ is reserved for use by Legacy ISA devices

Available IRQ addresses options are:

- IRQ3
- IRQ4
- IRQ5
- IRQ7
- IRQ9
- IRQ10
- IRQ 11
- IRQ 14
- IRQ 15

➔ **DMA Channel# [Available]**

Use the **DMA Channel#** option to assign a specific DMA channel to a particular PCI/PnP device.

➔	**Available**	**DEFAULT**	The specified DMA is available to be used by PCI/PnP devices
➔	**Reserved**		The specified DMA is reserved for use by Legacy ISA devices

Available DMA Channels are:

- DM Channel 0

- DM Channel 1
- DM Channel 3
- DM Channel 5
- DM Channel 6
- DM Channel 7

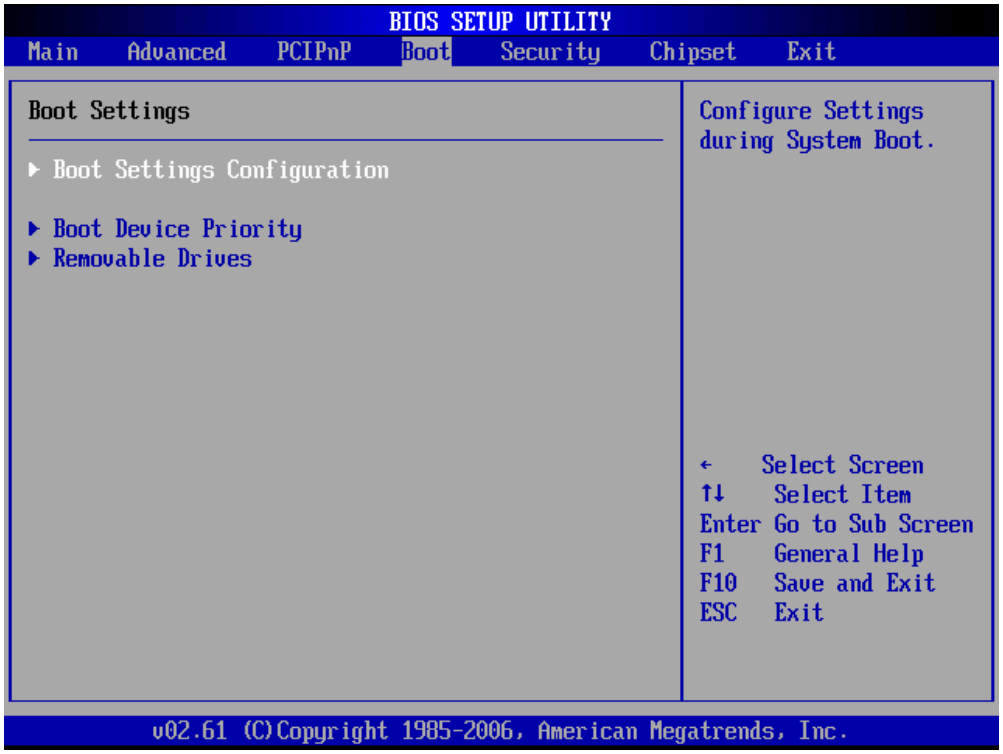
➔ **Reserved Memory Size [Disabled]**

Use the **Reserved Memory Size** BIOS option to specify the amount of memory that should be reserved for legacy ISA devices.

➔	**Disabled**	**DEFAULT**	No memory block reserved for legacy ISA devices
➔	**16K**		16KB reserved for legacy ISA devices
➔	**32K**		32KB reserved for legacy ISA devices
➔	**64K**		54KB reserved for legacy ISA devices

6.5 Boot

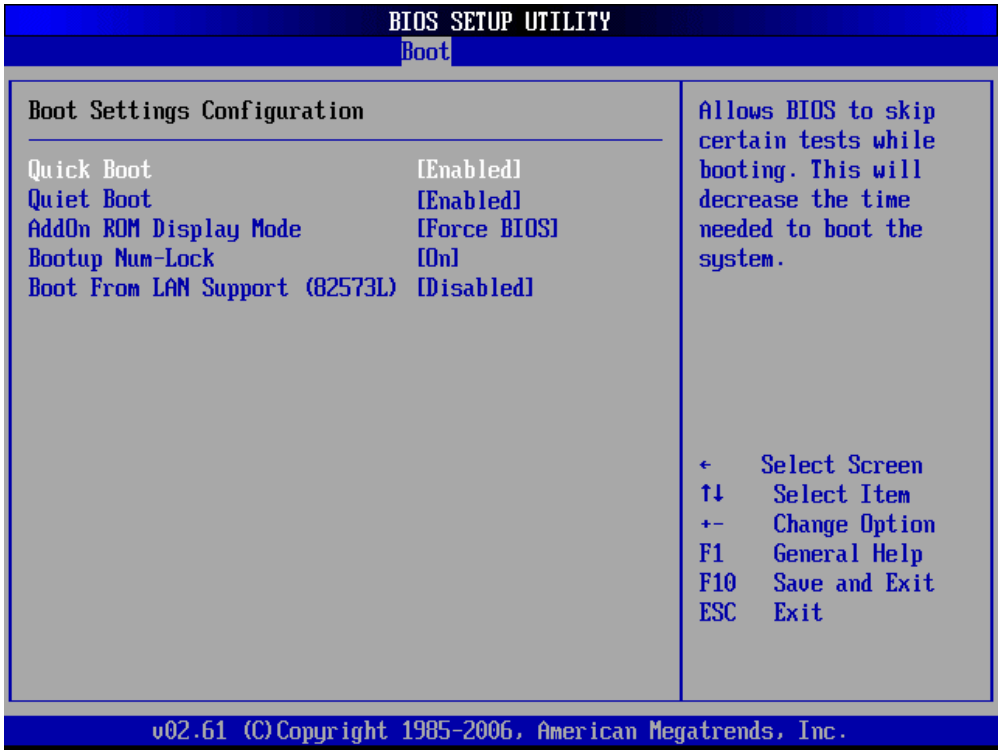
Use the **Boot** menu (**BIOS Menu 14**) to configure system boot options.



BIOS Menu 14: Boot

6.5.1 Boot Settings Configuration

Use the **Boot Settings Configuration** menu (**BIOS Menu 15**) to configure advanced system boot options.


BIOS SETUP UTILITY
Boot
Boot Settings Configuration
Quick Boot [Enabled]
Quiet Boot [Enabled]
AddOn ROM Display Mode [Force BIOS]
Bootup Num-Lock [On]
Boot From LAN Support (82573L) [Disabled]
Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 15: Boot Settings Configuration

➔ **Quick Boot [Enabled]**

Use the **Quick Boot** BIOS option to make the computer speed up the boot process.

➔ **Disabled**		No POST procedures are skipped
➔ **Enabled**	**DEFAULT**	Some POST procedures are skipped to decrease the system boot time

➔ **Quiet Boot [Enabled]**

Use the **Quiet Boot** BIOS option to select the screen display when the system boots.

➔ **Disabled**		Normal POST messages displayed
➔ **Enabled**	**DEFAULT**	OEM Logo displayed instead of POST messages

➔ **AddOn ROM Display Mode [Force BIOS]**

Use the **AddOn ROM Display Mode** option to allow add-on ROM (read-only memory) messages to be displayed.

➔ **Force BIOS**	**DEFAULT**	The system forces third party BIOS to display during system boot.
➔ **Keep Current**		The system displays normal information during system boot.

➔ **Bootup Num-Lock [On]**

Use the **Bootup Num-Lock** BIOS option to specify if the number lock setting must be modified during boot up.

➔ **Off**		Does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard lights up when the Number Lock is engaged.
➔ **On**	**DEFAULT**	Allows the Number Lock on the keyboard to be enabled automatically when the computer system boots up. This allows the immediate use of the 10-key numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard is lit.

➔ **Boot From LAN Support (82573L) [Disabled]**

Use the **BOOT From LAN Support (82573L)** option to enable the Intel® 82573L PCIe GbE controller to boot the system.

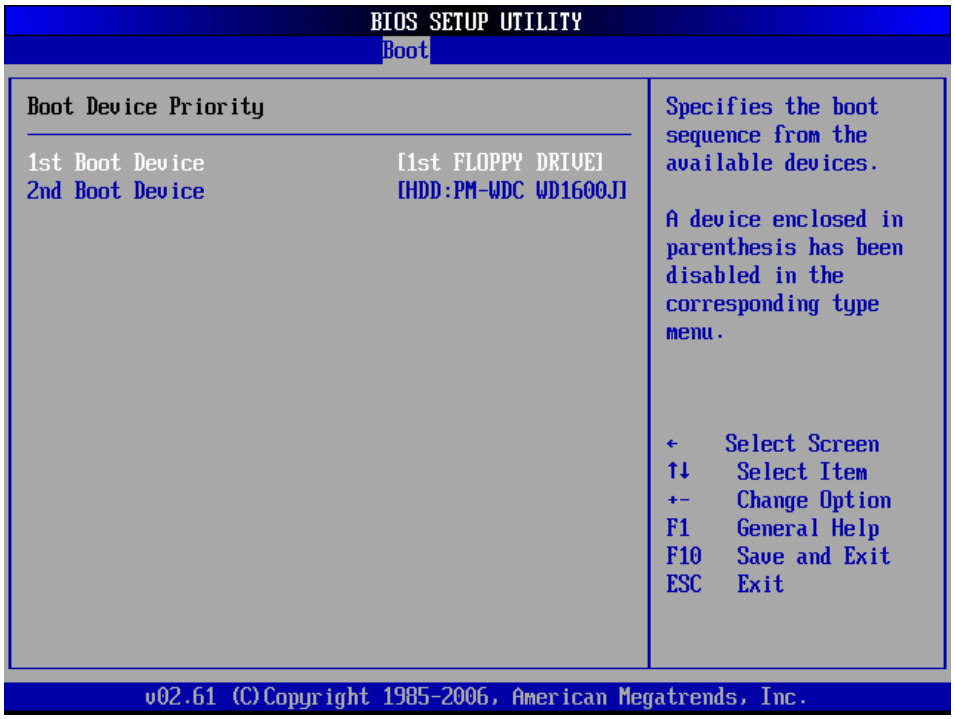
➔ **Disabled**	**DEFAULT**	Cannot be booted from a remote system through the Intel® 82573L PCIe GbE controller

➔ **Enabled** Can be booted from a remote system through the Intel® 82573L PCIe GbE controller

6.5.2 Boot Device Priority

Use the **Boot Device Priority** menu (**BIOS Menu 16**) to specify the boot sequence from the available devices. Possible boot devices may include:

- USB
- HDD
- CD/DVD


BIOS SETUP UTILITY
Boot
Boot Device Priority
1st Boot Device [1st FLOPPY DRIVE]
2nd Boot Device [HDD:PM-WDC WD1600J]
Specifies the boot sequence from the available devices.
A device enclosed in parenthesis has been disabled in the corresponding type menu.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 16: Boot Device Priority Settings

6.5.3 Removable Drives

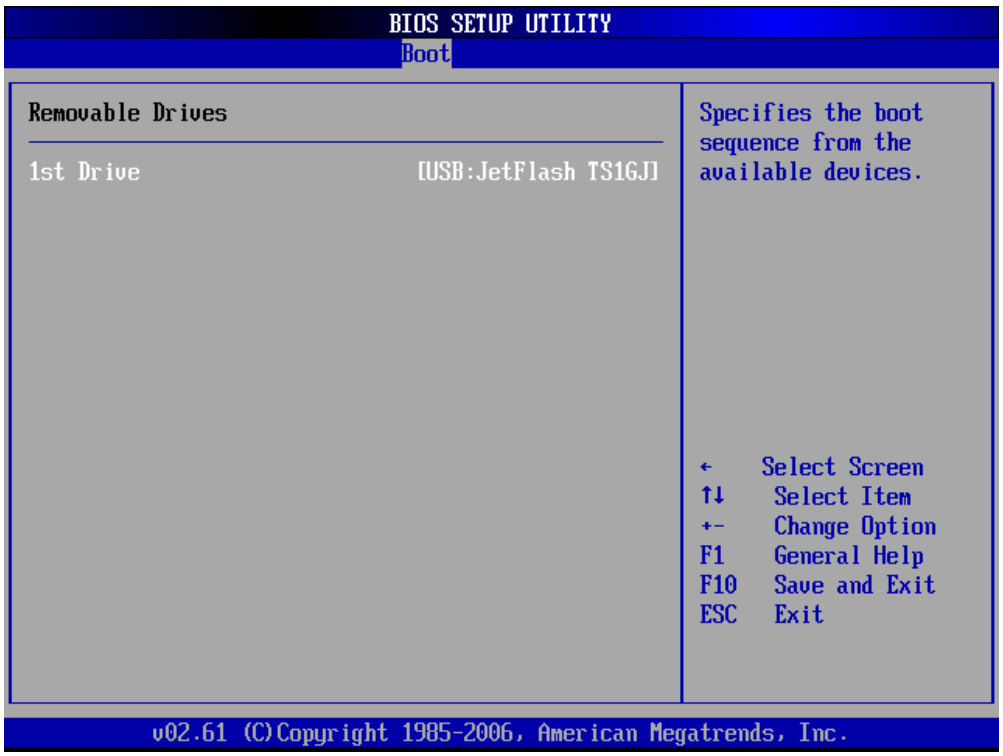
Use the **Removable Drives** menu (**BIOS Menu 17**) to specify the boot sequence of the available USB devices. When the menu is opened, the USB devices connected to the system are listed as shown below:

- 1st Drive [1st USB]
- 2nd Drive [2nd USB]

NOTE:

Only the drives connected to the system are shown. For example, if only one USB device is connected only "**1st Drive**" is listed.

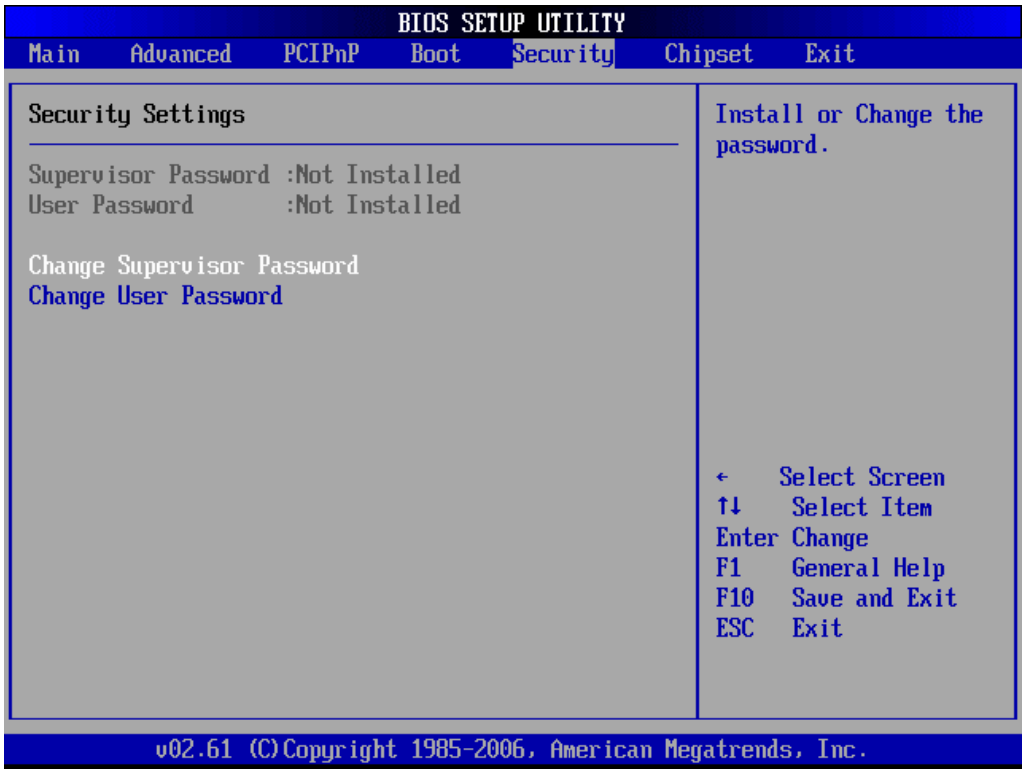
The boot sequence from the available devices is selected. If the "**1st Drive**" option is selected a list of available USB devices is shown. Select the first USB device the system boots from. If the "**1st Drive**" is not used for booting this option may be disabled.



BIOS Menu 17: Removable Drives

6.6 Security

Use the **Security** menu (**BIOS Menu 18**) to set system and user passwords.



BIOS Menu 18: Security

➔ **Change Supervisor Password**

Use the **Change Supervisor Password** to set or change a supervisor password. The default for this option is **Not Installed**. If a supervisor password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change Supervisor Password**.

➔ **Change User Password**

Use the **Change User Password** to set or change a user password. The default for this option is **Not Installed**. If a user password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change User Password**.

6.7 Chipset

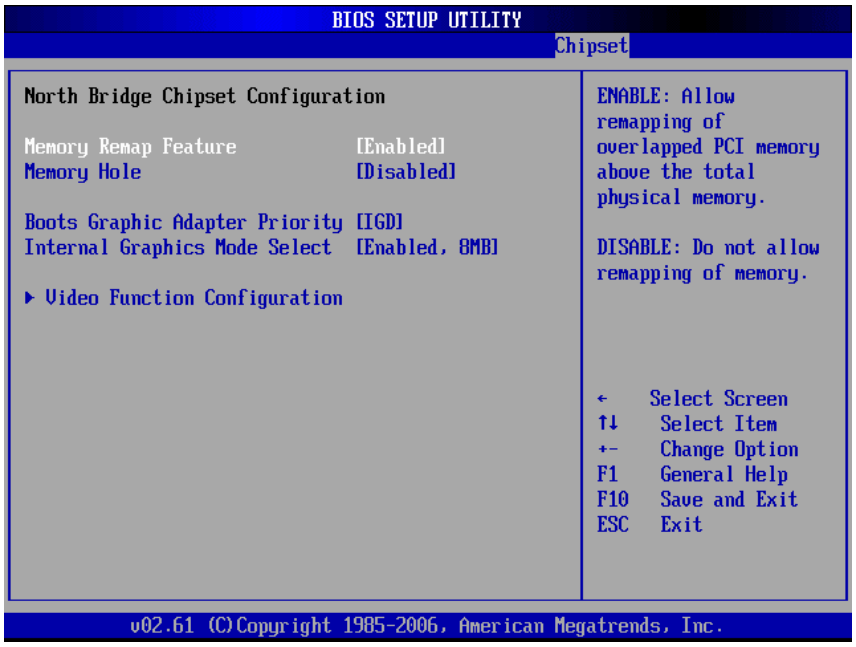
Use the **Chipset** menu to access the NorthBridge, SouthBridge and ME Subsystem configuration menus.

WARNING!

Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.

6.7.1 NorthBridge Configuration

Use the **Northbridge Chipset Configuration** menu (**BIOS Menu 19**) to configure the Northbridge chipset.


BIOS SETUP UTILITY
Chipset
North Bridge Chipset Configuration
Memory Remap Feature [Enabled]
Memory Hole [Disabled]
Boots Graphic Adapter Priority [IGD]
Internal Graphics Mode Select [Enabled, 8MB]
▸ Video Function Configuration
ENABLE: Allow remapping of overlapped PCI memory above the total physical memory.
DISABLE: Do not allow remapping of memory.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 19:Northbridge Chipset Configuration

➔ **Memory Remap Feature [Enabled]**

Use the **Memory Remap Feature** option to allow the overlapped PCI memory above the total physical memory to be remapped.

➔ **Disabled** Overlapped PCI memory cannot be remapped

➔ **Enabled** **DEFAULT** Overlapped PCI memory can be remapped

➔ **Memory Hole [Disabled]**

Use the **Memory Hole** option to reserve memory space between 15MB and 16MB for ISA expansion cards that require a specified area of memory to work properly. If an older ISA expansion card is used, please refer to the documentation that came with the card to see if it is necessary to reserve the space.

➔ **Disabled** **DEFAULT** Memory is not reserved for ISA expansion cards

➔ **15MB – 16MB** Between 15MB and 16MB of memory is reserved for ISA expansion cards

➔ **Boots Graphics Adapter Priority [IGD]**

Use the **Boots Graphics Adapter Priority** option to select the graphics controller used as the primary boot device. Select either an integrated graphics controller (IGD) or a combination of PCI graphics controller, a PCI express (PEG) controller or an IGD. Configuration options are listed below:

- IGD **DEFAULT**
- PCI/IGD

➔ **Internal Graphics Mode Select [Enable, 8MB]**

Use the **Internal Graphic Mode Select** option to specify the amount of system memory that can be used by the Internal graphics device.

➔ **Disable**

➔ **Enable, 1MB** 1MB of memory used by internal graphics device

➔ **Enable, 8MB** **DEFAULT** 8MB of memory used by internal graphics device

6.7.1.1 Video Function Configuration

Use the **Video Function Configuration** menu to configure the video device connected to the system.

➔ **Boot Display Device [Auto]**

Use the **Boot Display Device** option to select the display device used by the system when it boots. Configuration options are listed below.

- Auto **DEFAULT**
- CRT
- TV
- LFP

➔ **Flat Panel Type [BY HARDWARE]**

Use the **Flat Panel Type** option to select the type of flat panel connected to the system. Configuration options are listed below.

- 640x480 18b
- 800x600 18b
- 1024x768 18b
- 1024x768 24b
- 1280x1024 48b
- 1600x1200 48b
- BY HARDWARE

➔ **TV Standard [VBIOS-Default]**

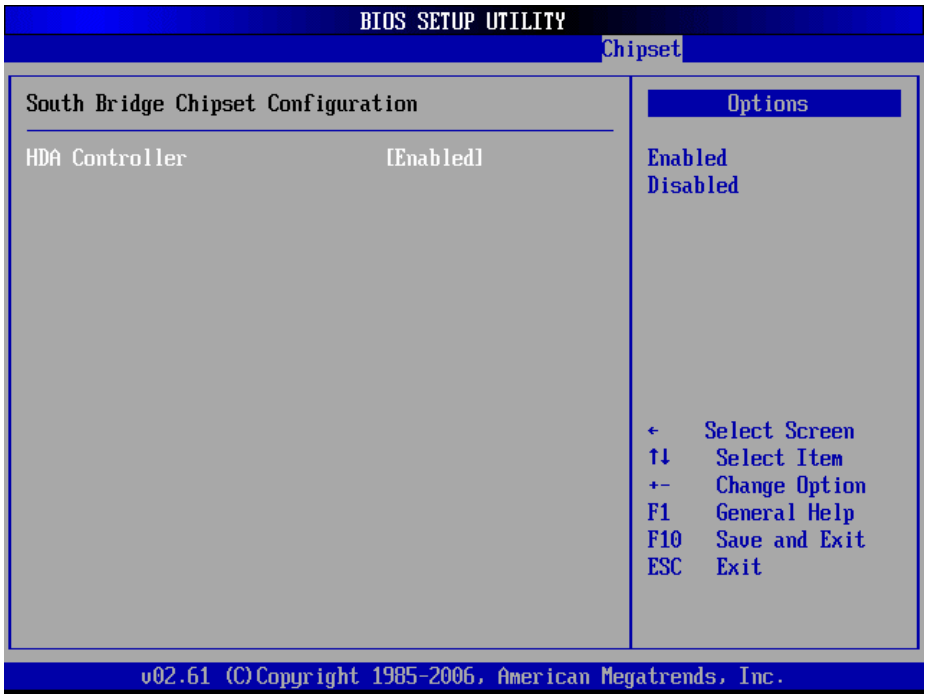
Use the **TV Standard** option to select the standard of the television connected to the system. The configuration options are listed below.

- VBIOS-Default **DEFAULT**
- NTSC
- PAL
- SECAM

- SMPTE240M
- ITU-R television
- SMPTE295M
- SMPTE296M
- EIA-770.2
- EIA-770.3

6.7.2 Southbridge Configuration

The **Southbridge Configuration** menu (**BIOS Menu 20**) allows the Southbridge chipset to be configured.



BIOS Menu 20:Southbridge Chipset Configuration

➔ **HDA Controller [Enabled]**

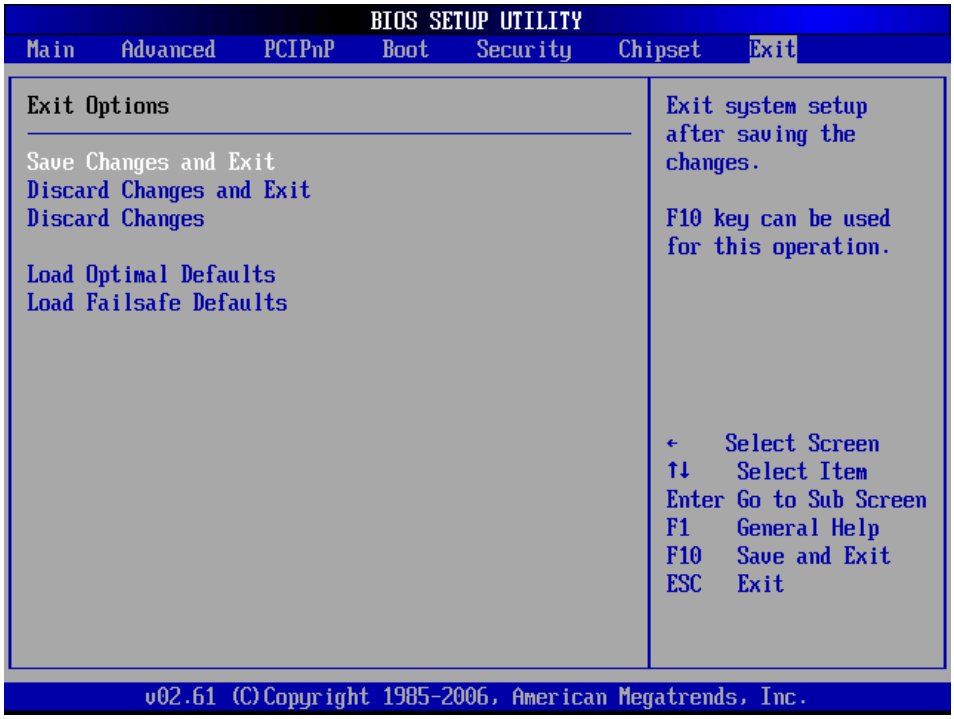
Use the **HDA Controller** option to enable the Southbridge high definition audio controller. If the HDA device has been connected to the system, this option should be enabled.

➔ **Enabled** **DEFAULT** Southbridge HDA controller is enabled

➔ **Disabled** Southbridge HDA controller is disabled

6.8 Exit

Use the **Exit** menu (**BIOS Menu 21**) to load default BIOS values, optimal failsafe values and to save configuration changes.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Optimal Defaults
Load Failsafe Defaults
Exit system setup after saving the changes.
F10 key can be used for this operation.
← Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

BIOS Menu 21: Exit

➔ **Save Changes and Exit**

Use the **Save Changes and Exit** option to save the changes made to the BIOS options and to exit the BIOS configuration setup program.

➔ **Discard Changes and Exit**

Use the **Discard Changes and Exit** option to exit the BIOS configuration setup program without saving the changes made to the system.

➔ **Discard Changes**

Use the **Discard Changes** option to discard the changes and remain in the BIOS configuration setup program.

➔ **Load Optimal Defaults**

Use the **Load Optimal Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F9 key can be used for this operation.**

➔ **Load Failsafe Defaults**

Use the **Load Failsafe Defaults** option to load failsafe default values for each of the parameters on the Setup menus. **F8 key can be used for this operation.**

Chapter

7

Software Drivers

7.1 Available Software Drivers

NOTE:

The content of the CD may vary throughout the life cycle of the product and is subject to change without prior notice. Visit the IEI website or contact technical support for the latest updates.

The following drivers can be installed on the system:

- Intel® chipset driver
- VGA driver
- LAN drivers
- Audio driver
- SATA driver

Installation instructions are given below.

7.2 Driver CD Auto-run

All the drivers for the PCISA-9652 are on the CD that came with the system. To install the drivers, please follow the steps below.

Step 1: Insert the CD into a CD drive connected to the system.

NOTE:

If the system does not initiate the "autorun" program when the CD is inserted, click the **Start** button, select **Run**, then type **X:\autorun.exe** (where **X:** is the system CD drive) to access the IEI Driver CD main menu.

Step 2: The driver main menu appears (**Figure 7-1**).

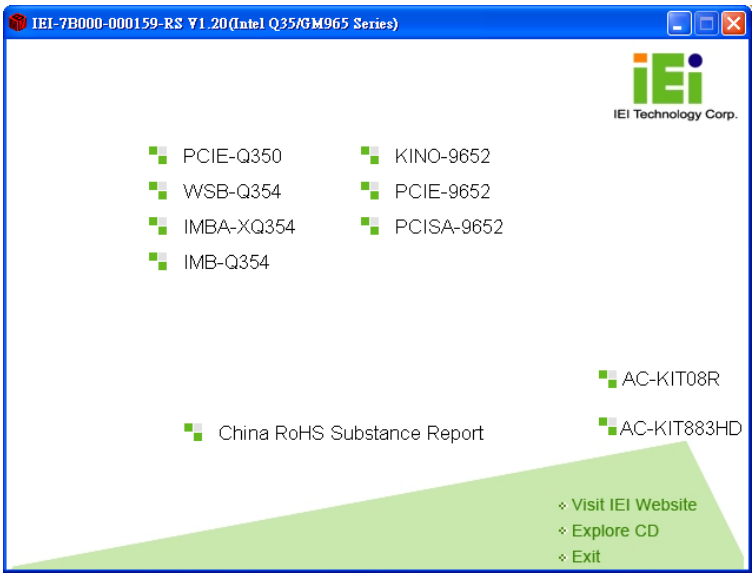


Figure 7-1: Introduction Screen

Step 3: Click PCISA-9652.

Step 4: A new screen with a list of available drivers appears (**Figure 7-2**).

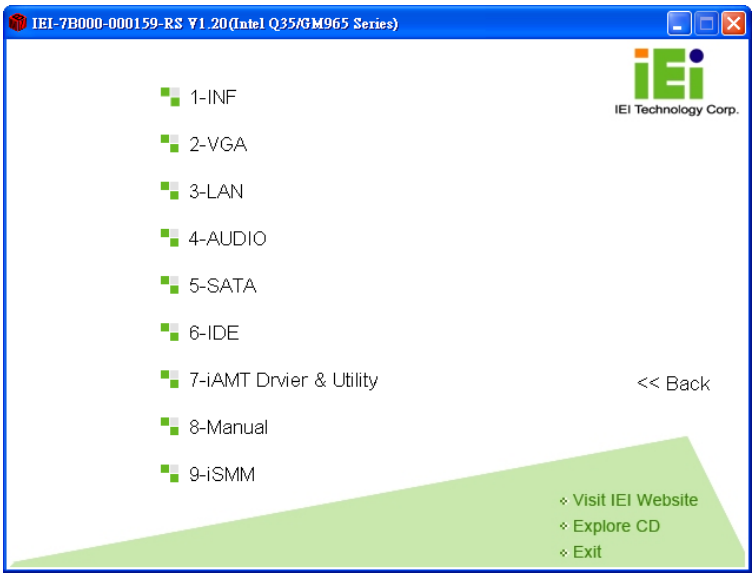


Figure 7-2: Available Drivers

Step 5: Select the driver to install from the list in **Figure 7-2**. Detailed driver installation instructions follow below.

7.3 Intel® Chipset Driver

To install the Intel® chipset driver, please follow the steps below.

Step 1: Select **PCISA-9652** from the list in **Figure 7-1**.

Step 2: Select **INF** from the list in **Figure 7-2**.

Step 3: The window shown in **Figure 7-3** appears.

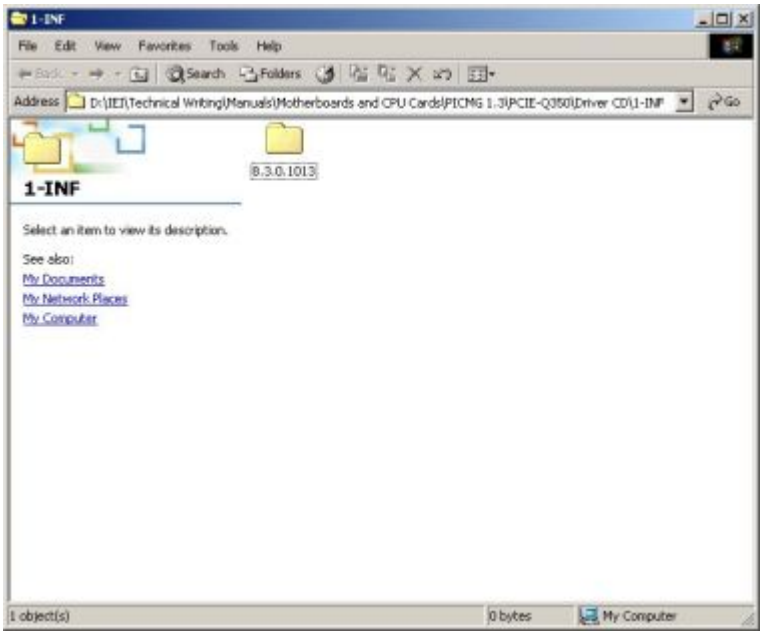


Figure 7-3: Intel® Chipset Driver Directory

Step 4: Click on the directory icon in **Figure 7-3**.

Step 5: The window in **Figure 7-4** appears.

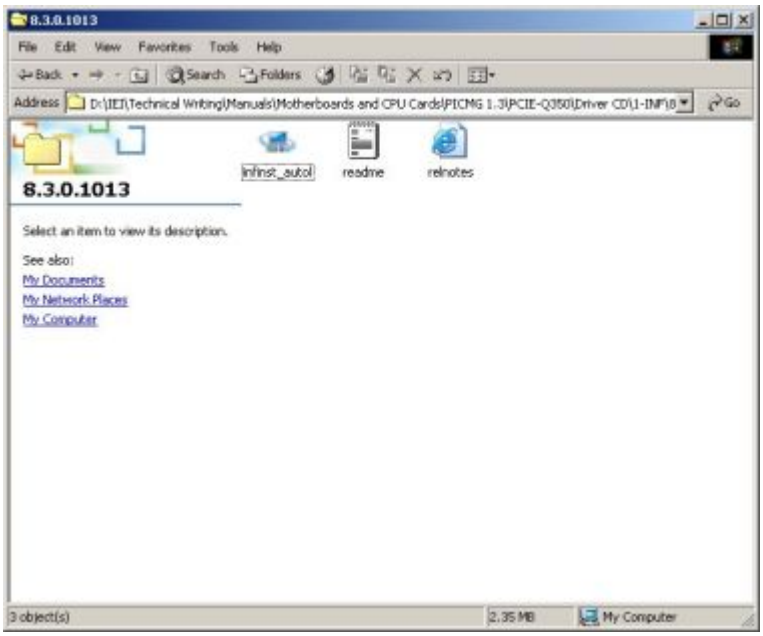


Figure 7-4: Intel® Chipset Driver Setup Icon

Step 6: Click on the **infinst_autol** setup icon in **Figure 7-4**.

Step 7: The **Intel® Package Manager** begins to extract the installation files. See **Figure 7-5**.

Figure 7-5: Intel® Package Manager

Step 8: The **Intel® Setup Welcome** screen. See **Figure 7-6**.

Intel® Chipset Device Software
Intel® Chipset Device Software
Welcome to the Setup Program
This setup program will install the Intel® Chipset Device Software onto this computer. It is strongly recommended that you exit all Windows® programs before continuing.
< Back
Next >
Cancel
Intel® Installation Framework

Figure 7-6: Intel® Setup Welcome Screen

Step 9: Click **NEXT** to continue.

Step 10: The Intel® license agreement in appears.

Intel® Chipset Device Software
Intel® Chipset Device Software
License Agreement
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
< Back
Yes
No
Intel® Installation Framework

Figure 7-7: Intel® Chipset Driver License Agreement

Step 11: Accept the terms and conditions by clicking **YES**.

Step 12: The **Readme** file in **Figure 7-8** appears.

Intel® Chipset Device Software
Intel® Chipset Device Software
Readme File Information
Refer to the Readme file below to view the system requirements and installation information.
Press the Page Down key to view the rest of the file.
* Product: Intel(R) Chipset Device Software
* Release: Production Version
* Version: 8.3.0.1013
* Target Chipset#: Q33/G33/G31/P35
* Date: March 05 2007
< Back
Next >
Cancel
Intel® Installation Framework

Figure 7-8: Readme File

Step 13: Click **NEXT** to continue.

Step 14: The driver is then installed.

Step 15: When the installation process is complete, the Setup Complete screen appears.

See **Figure 7-9**.

Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Is Complete
intel
The setup program successfully installed the Intel® Chipset Device Software onto this computer.
Click Finish to complete the setup process.
Finish
Intel® Installation Framework

Figure 7-9: Intel® Chipset Driver Complete Installation Screen

Step 16: To complete the chipset driver installation, click **FINISH**.

7.4 Intel® Graphics Media Accelerator Driver

To install the chipset driver, please follow the steps below:

Step 1: Select the VGA driver from the list in **Figure 7-2**.

Step 2: A new window opens. See **Figure 7-10**.

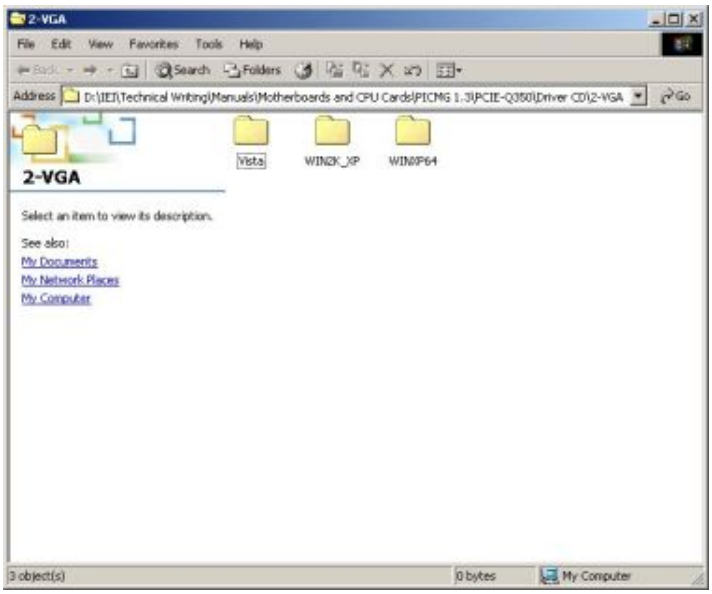


Figure 7-10: Select the Operating System

Step 3: Select the operating system from those shown in **Figure 7-10**.

Step 4: A new window appears. See **Figure 7-11**.

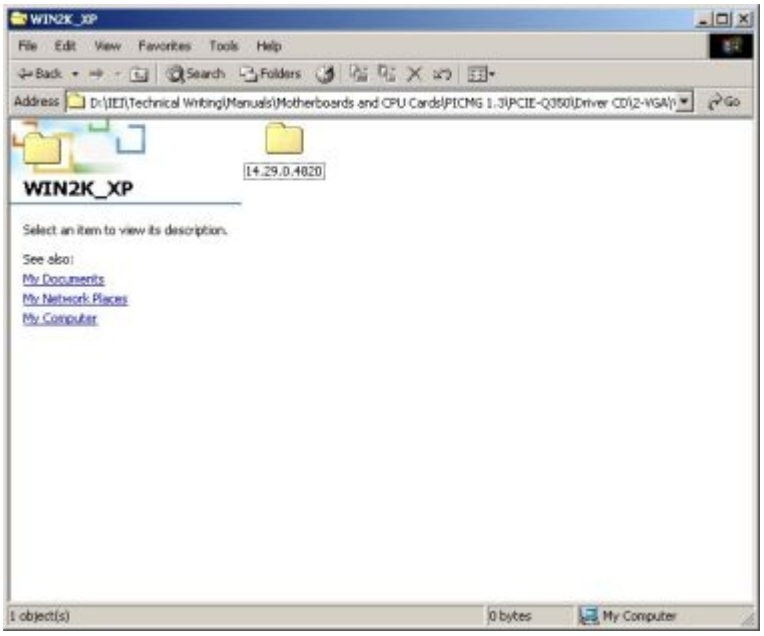


Figure 7-11: Intel® Driver Directory

Step 5: Click the directory icon in **Figure 7-11**.

Step 6: A new window appears. See **Figure 7-12**.

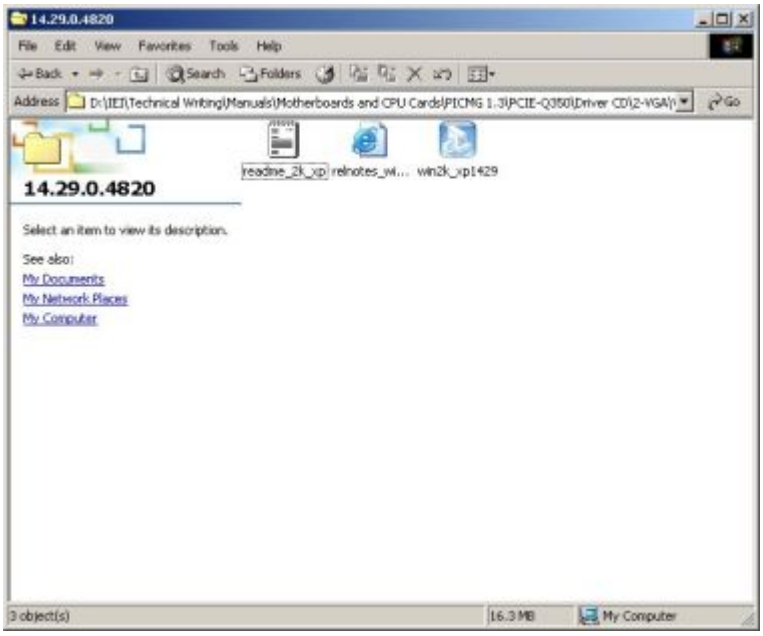


Figure 7-12: Intel® VGA Driver Setup Icon

Step 7: Click on the VGA driver installation icon in See **Figure 7-12**.

Step 8: The Readme information file shown in **Figure 7-13** appears.

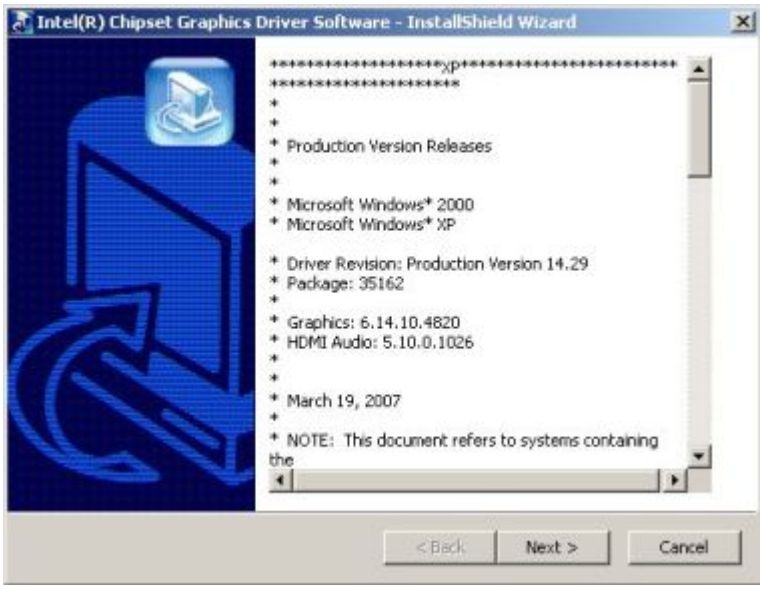


Figure 7-13: GMA Driver Readme File

Step 9: Click **NEXT** to extract the GMA driver files. See **Figure 7-14**.

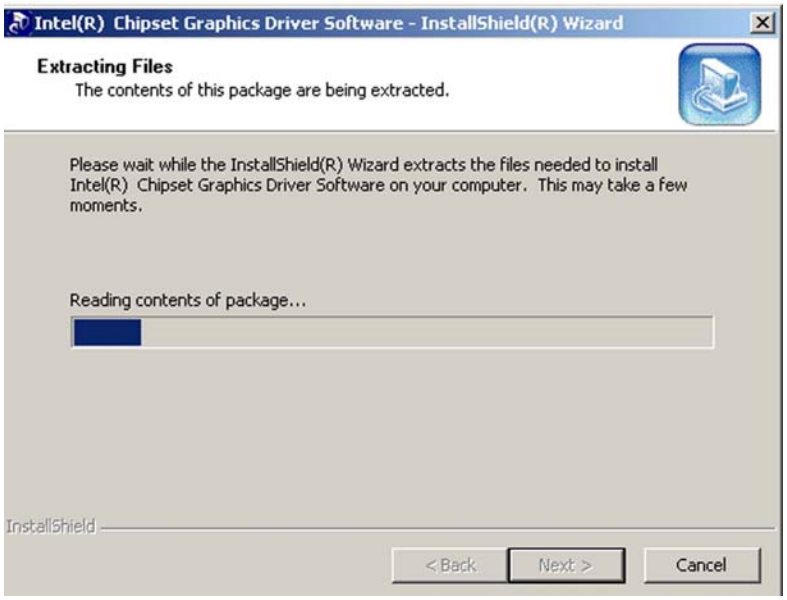

Intel(R) Chipset Graphics Driver Software - InstallShield(R) Wizard
Extracting Files
The contents of this package are being extracted.
Please wait while the InstallShield(R) Wizard extracts the files needed to install Intel(R) Chipset Graphics Driver Software on your computer. This may take a few moments.
Reading contents of package...
InstallShield
< Back
Next >
Cancel

Figure 7-14: GMA Driver File Extraction

Step 10: The welcome screen shown in **Figure 7-15** appears.

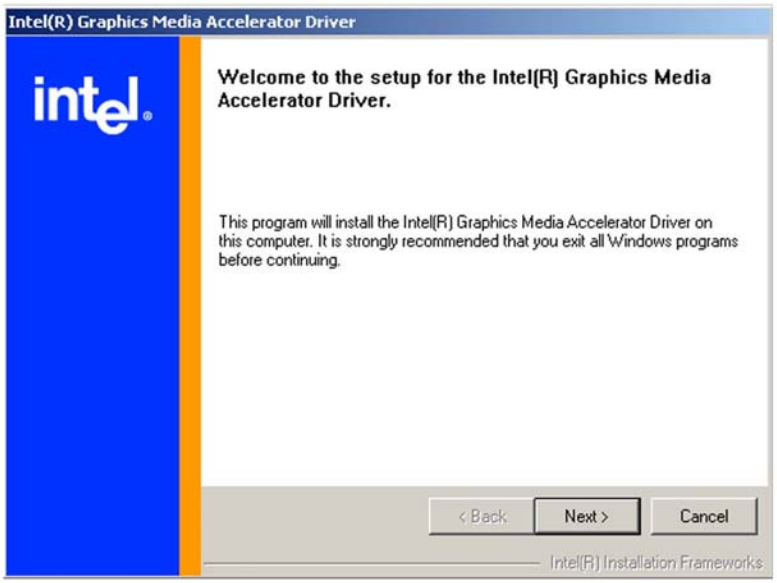

Intel(R) Graphics Media Accelerator Driver
intel
Welcome to the setup for the Intel(R) Graphics Media Accelerator Driver.
This program will install the Intel(R) Graphics Media Accelerator Driver on this computer. It is strongly recommended that you exit all Windows programs before continuing.
< Back
Next >
Cancel
Intel(R) Installation Frameworks

Figure 7-15: GMA Driver Installation Welcome Screen

Step 11: To continue the installation process, click **NEXT**.

Step 12: The license agreement in **Figure 7-16** appears.

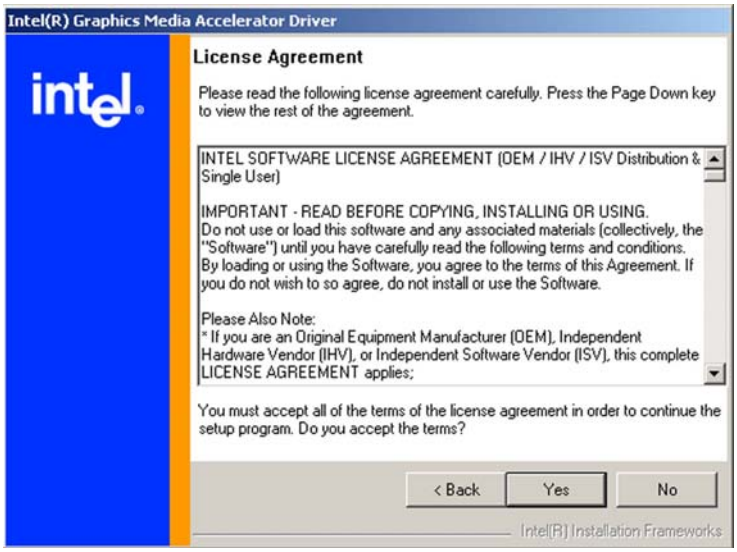

Intel(R) Graphics Media Accelerator Driver
intel
License Agreement
Please read the following license agreement carefully. Press the Page Down key to view the rest of the agreement.
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
< Back
Yes
No
Intel(R) Installation Frameworks

Figure 7-16: GMA Driver License Agreement

Step 13: Click the **YES** in **Figure 7-16** to continue.

Step 14: The installation notice shown in **Figure 7-17** appears.

Figure 7-17: GMA Driver Installing Notice

Step 15: A confirmation screen shown in **Figure 7-18** appears.

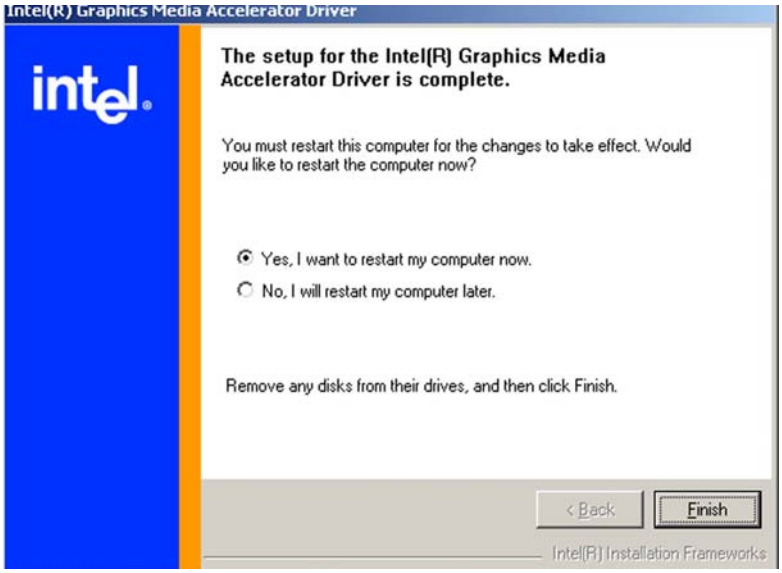

Intel(R) Graphics Media Accelerator Driver
intel
The setup for the Intel(R) Graphics Media Accelerator Driver is complete.
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish.
< Back
Finish
Intel(R) Installation Frameworks

Figure 7-18: GMA Driver Installation Complete

Step 16: After selecting when to restart the computer in **Figure 7-18**, click **FINISH**.

7.5 Intel® 82573 PCI Express Gigabit Ethernet Controller Driver

To install the Intel® 82573 PCIe GbE controller, please follow the steps below.

Step 1: Select **LAN** from the list in **Figure 7-2**.

Step 2: The window in **Figure 7-19** appears.

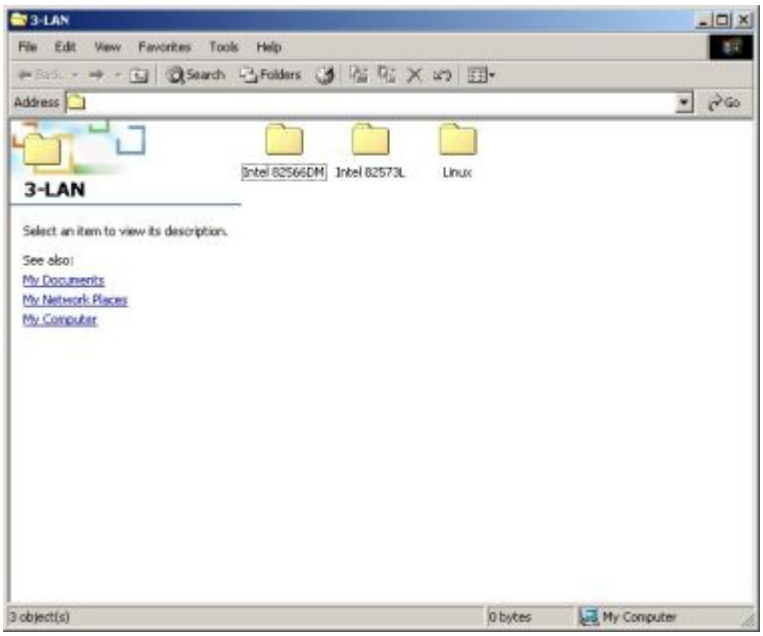


Figure 7-19: Intel® 82573 Driver Directory Icon

Step 3: Click on the **Intel® 82573L** directory icon in **Figure 7-19**.

Step 4: The window in **Figure 7-20** appears.

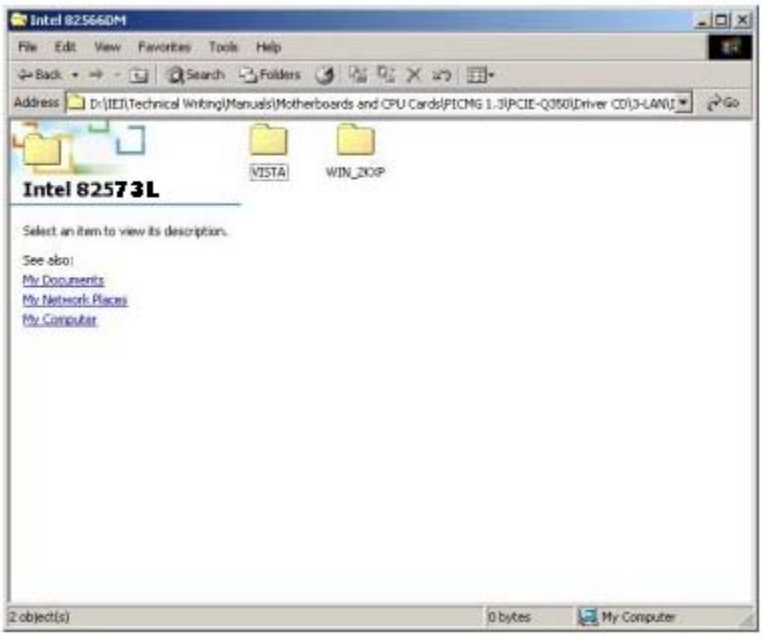


Figure 7-20: Intel® 82573 Operating System

Step 5: Select the Operating System in **Figure 7-20**.

Step 6: The window in **Figure 7-21** appears.

Step 7: In **Figure 7-21** select the operating system type installed on the system.

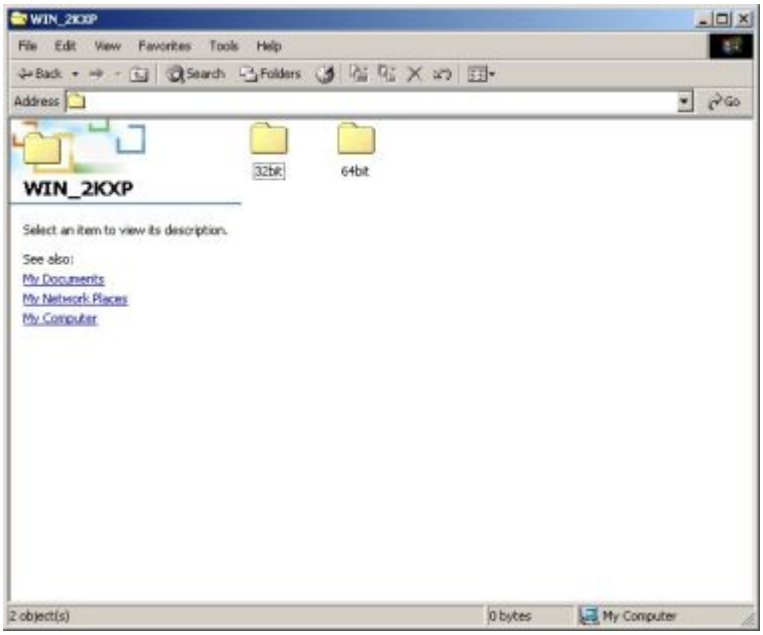


Figure 7-21: Select Operating System Type

Step 8: The window in **Figure 7-22** appears.

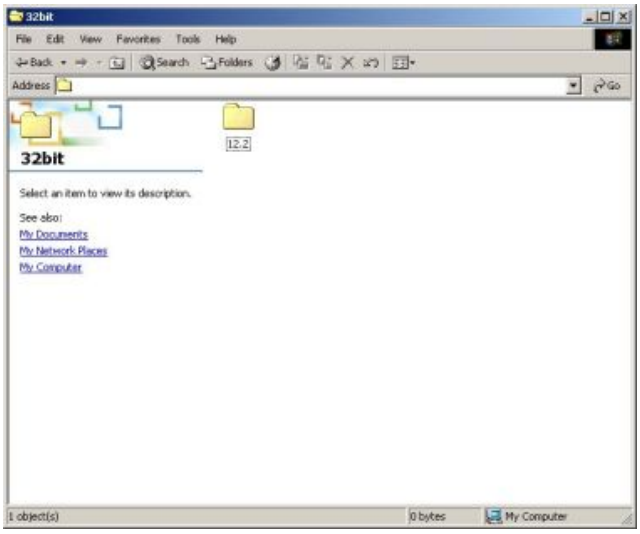


Figure 7-22: Driver Directory

Step 9: Click on the directory icon in **Figure 7-22**.

Step 10: A window containing the Intel® 82573 driver startup icon appears. See **Figure 7-22**.

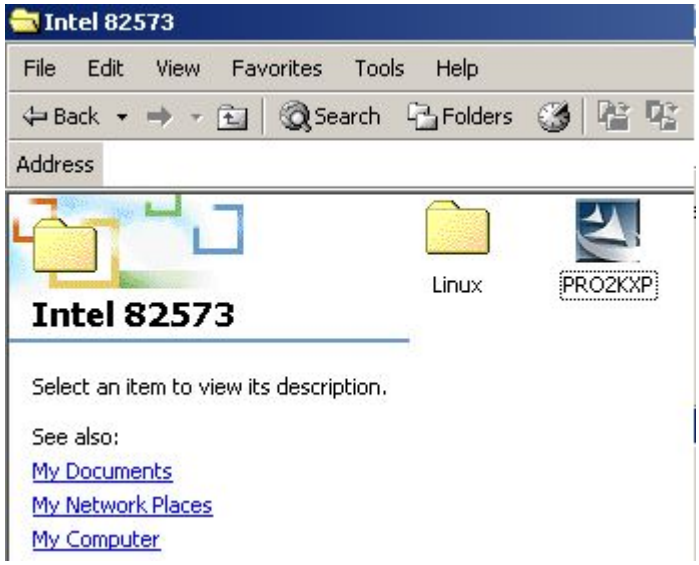


Figure 7-23: Intel® 82573 Driver Startup Icon

Step 11: Click the startup icon in **Figure 7-23**.

Step 12: The **License Agreement** for the Intel® 82573 appears. See **Figure 7-24**.

DriverInstaller - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
INTEL SOFTWARE LICENSE AGREEMENT
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
I accept the terms in the license agreement
I do not accept the terms in the license agreement
InstallShield
< Back
Next >
Cancel

Figure 7-24: Intel® 82573 License Agreement

Step 13: Accept the license terms and agreements in and click **NEXT** to continue.

Step 14: Next, select the directory in which the files must be saved. See **Figure 7-25**.

DriverInstaller - InstallShield Wizard
Location to Save Files
Where would you like to save your files?
Please enter the folder where you want these files saved. If the folder does not exist, it will be created for you. To continue, click Next.
Save files in folder:
c:\Intel11.1
Change...
InstallShield
< Back
Next >
Cancel

Figure 7-25: Intel® 82573 File Location Select

Step 15: Click **NEXT** to continue.

Step 16: The driver begins to extract the installation files. See **Figure 7-26**.

DriverInstaller - InstallShield Wizard
Extracting Files
The contents of this package are being extracted.
Please wait while the InstallShield Wizard extracts the files needed to install DriverInstaller on your computer. This may take a few moments.
Extracting Autorun.exe...
InstallShield
< Back
Next >
Cancel

Figure 7-26: Intel® 82573 Installation Files Extraction

Step 17: The Intel® PRO Network Connections window appears. See **Figure 7-27**.

Figure 7-27: Intel® PRO Network Connections window

Step 18: Click **INSTALL DRIVERS** in **Figure 7-27**.

Step 19: The **Intel® PRO Network Connections Welcome** screen in **Figure 7-28** appears.

Intel(R) PRO Network Connections - InstallShield Wizard
Welcome to the InstallShield Wizard for Intel(R) PRO Network Connections
Installs drivers, Intel(R) PROSet for Windows* Device Manager, and Advanced Networking Services.
WARNING: This program is protected by copyright law and international treaties.
InstallShield
< Back
Next >
Cancel

Figure 7-28: Intel® PRO Network Connections Welcome

Step 20: Click **NEXT** to continue.

Step 21: A new **License Agreement** appears. See **Figure 7-29**.

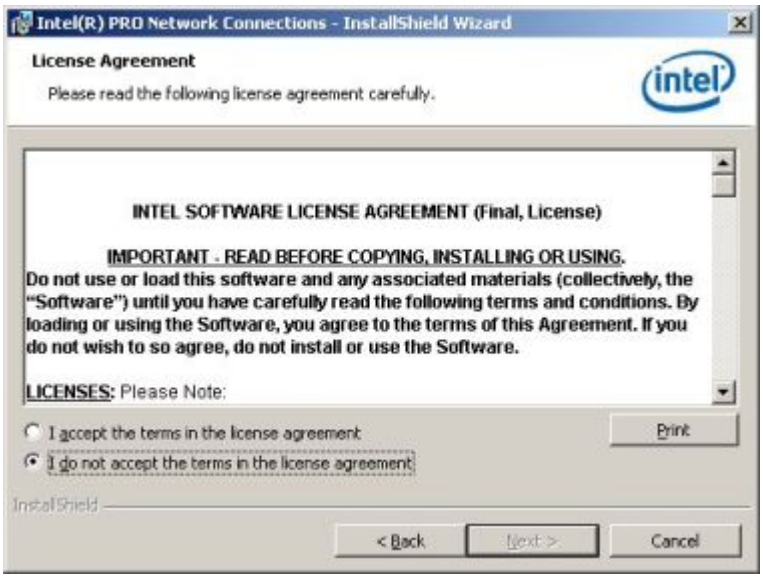

Intel(R) PRO Network Connections - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
INTEL SOFTWARE LICENSE AGREEMENT (Final, License)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
LICENSES: Please Note:
I accept the terms in the license agreement
I do not accept the terms in the license agreement
Print
InstallShield
< Back
Next >
Cancel

Figure 7-29: License Agreement

Step 22: Accept the terms and conditions in **Figure 7-29** and click **NEXT** to continue.

Step 23: The **Setup Type** window in **Figure 7-30** appears.

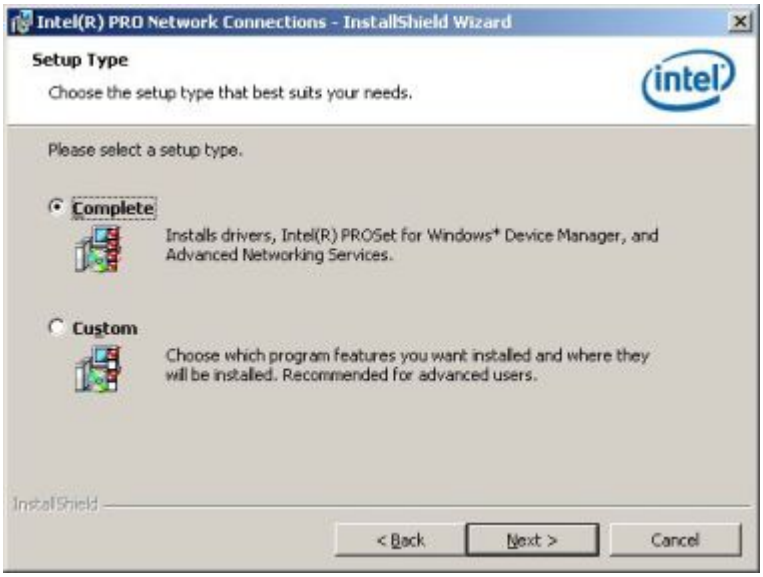

Intel(R) PRO Network Connections - InstallShield Wizard
Setup Type
Choose the setup type that best suits your needs.
intel
Please select a setup type.
Complete
Installs drivers, Intel(R) PROSet for Windows* Device Manager, and Advanced Networking Services.
Custom
Choose which program features you want installed and where they will be installed. Recommended for advanced users.
InstallShield
< Back
Next >
Cancel

Figure 7-30: Setup Type

Step 24: Select the setup type in **Figure 7-30** and click **NEXT** to continue.

Step 25: The drivers are installed. See **Figure 7-31**.

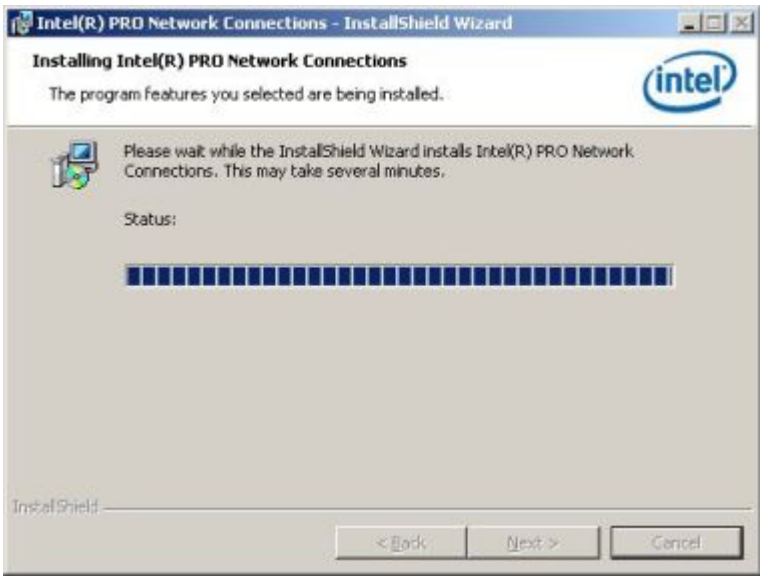

Intel(R) PRO Network Connections - InstallShield Wizard
Installing Intel(R) PRO Network Connections
The program features you selected are being installed.
intel
Please wait while the InstallShield Wizard installs Intel(R) PRO Network Connections. This may take several minutes.
Status:
InstallShield
< Back
Next >
Cancel

Figure 7-31: Intel® 82573 Driver Installation Progress

Step 26: When the driver is installed. Click **FINISH** in the termination screen.

7.6 Realtek HD Audio Driver (ALC883) Installation

To install the Realtek High Definition (HD) Audio driver, please follow the steps below.

NOTE:

This driver only needs to be installed if an external audio kit with a RealTek ALC883 codec is installed.

7.6.1 BIOS Setup

Step 1: Enter the BIOS setup. To do this, reboot the system and press **DEL** during POST.

Step 2: Go to the Southbridge Configuration menu. Enable the High Definition Audio controller.

Step 3: Press **F10** to save the changes and exit the BIOS setup. The system reboots.

7.6.2 Driver Installation

To install the audio driver please follow the steps below.

Step 1: Select **AUDIO** from the list in **Figure 7-2**.

Step 2: A new window opens (**Figure 7-32**).

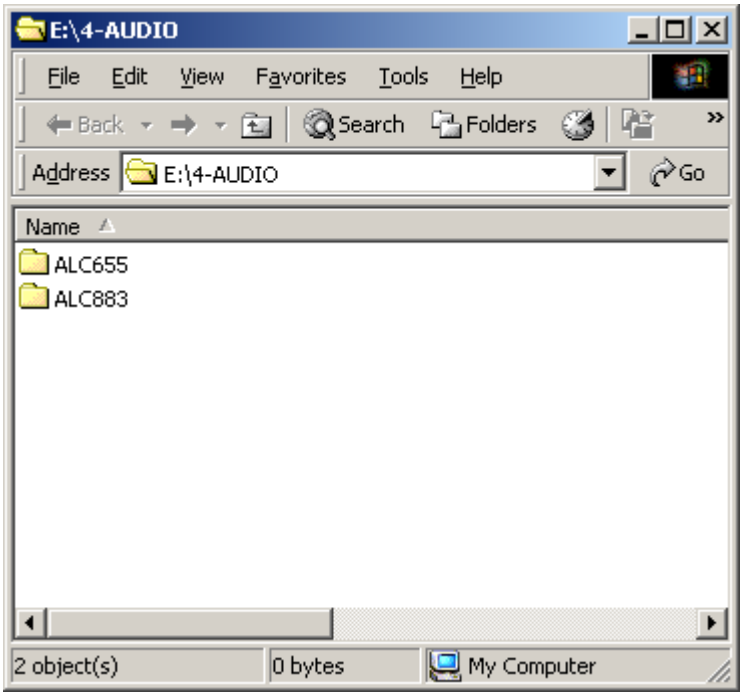


Figure 7-32: Select the Audio CODEC

Step 3: Double-click the ALC883 folder.

Step 4: Double-click the appropriate operating system folder (**Figure 7-33**).

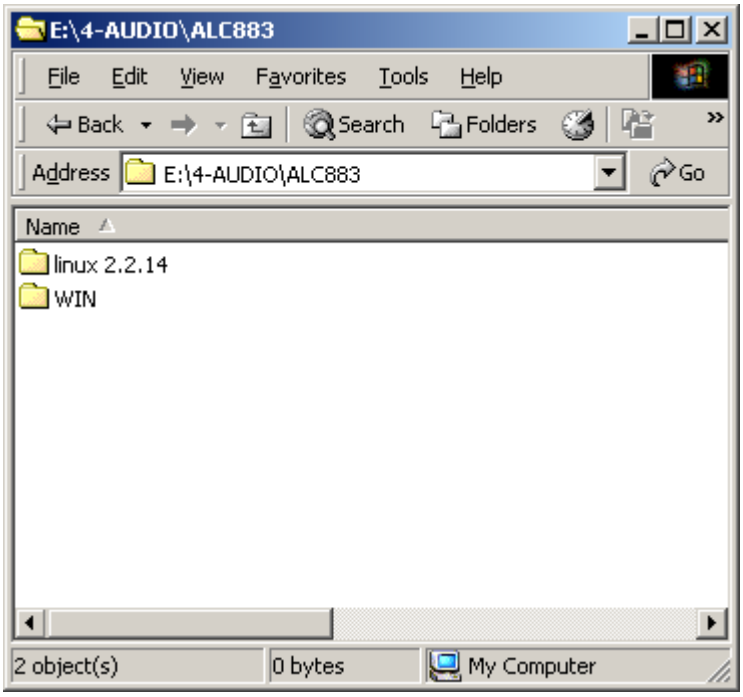


Figure 7-33: Select the OS

Step 5: Double-click the appropriate operating system version folder (**Figure 7-34**).

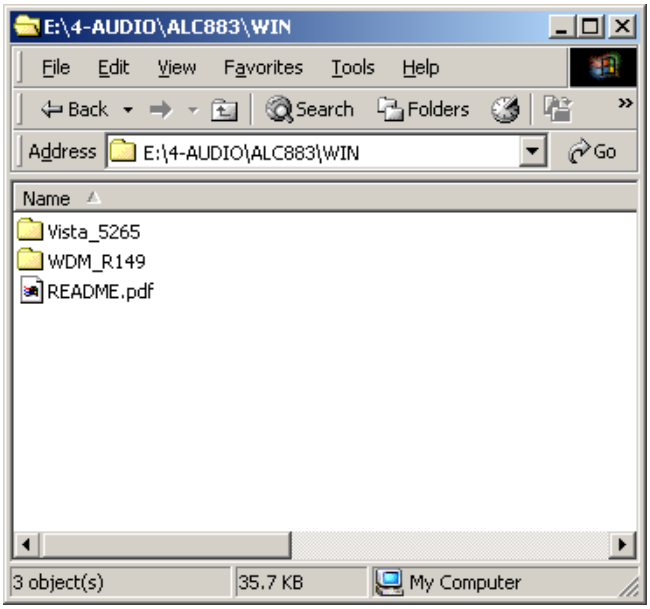


Figure 7-34: Select the OS Version

Step 6: Double-click the **Setup.exe** program icon in **Figure 7-35**.

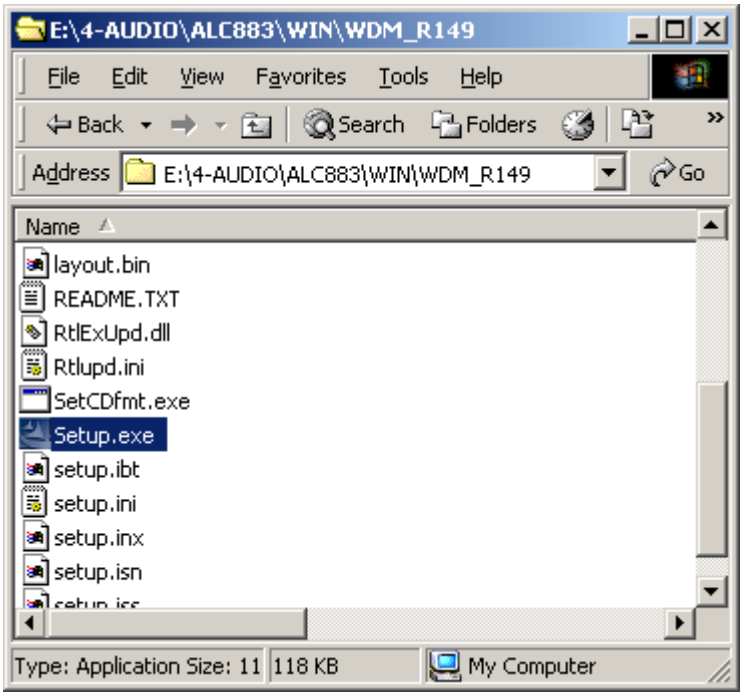


Figure 7-35: Locate the Setup Program Icon

Step 7: The **InstallShield Wizard** starts (**Figure 7-36**).

Figure 7-36: The InstallShield Wizard Starts

Step 8: The **InstallShield Wizard** is prepared to guide the user through the rest of the process (**Figure 7-37**).

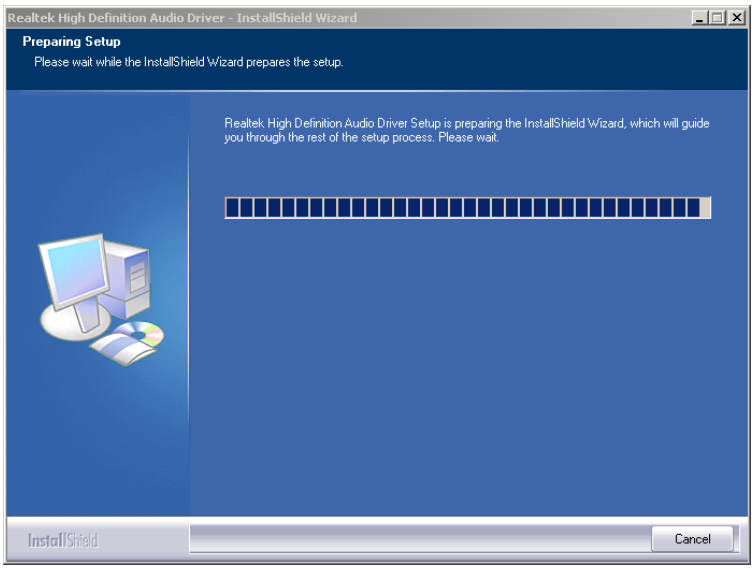

Realtek High Definition Audio Driver - InstallShield Wizard
Preparing Setup
Please wait while the InstallShield Wizard prepares the setup.
Realtek High Definition Audio Driver Setup is preparing the InstallShield Wizard, which will guide you through the rest of the setup process. Please wait.
InstallShield
Cancel

Figure 7-37: Preparing Setup Screen

Step 9: Once initialized, the **InstallShield Wizard** welcome screen appears (**Figure 7-38**).

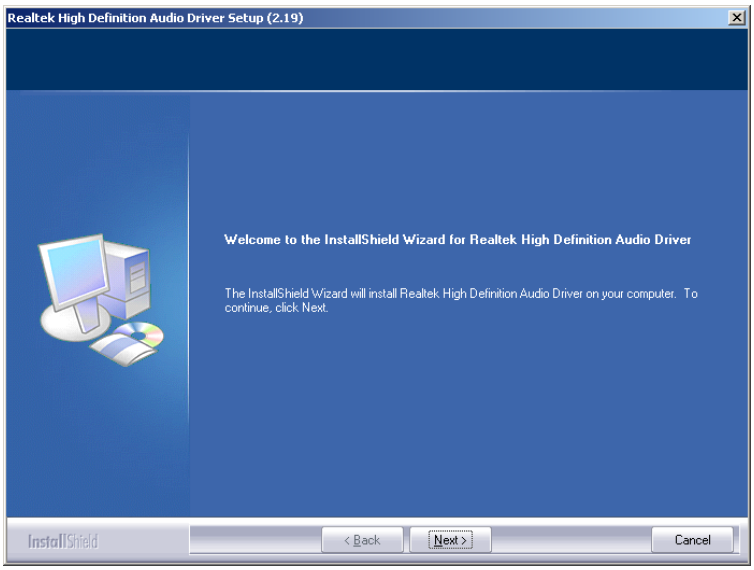

Realtek High Definition Audio Driver Setup (2.19)
Welcome to the InstallShield Wizard for Realtek High Definition Audio Driver
The InstallShield Wizard will install Realtek High Definition Audio Driver on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

Figure 7-38: InstallShield Wizard Welcome Screen

Step 10: Click **NEXT** to continue the installation.

Step 11: InstallShield starts to install the new software as shown in **Figure 7-39**.

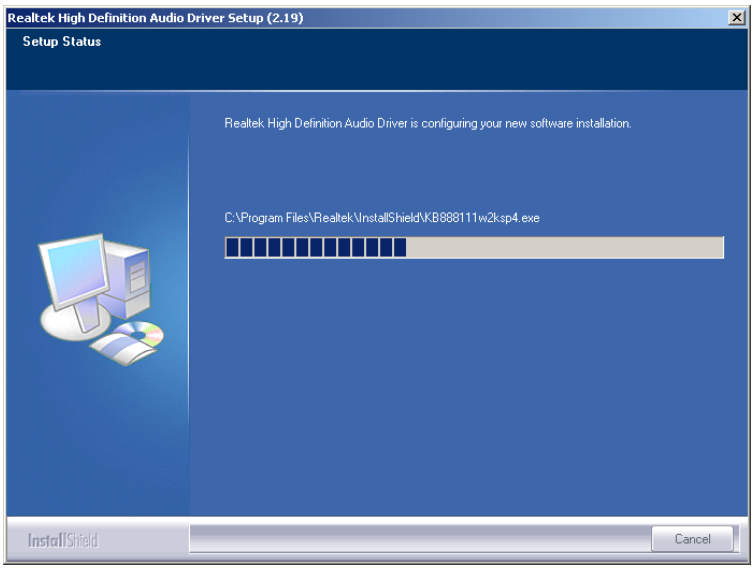

Realtek High Definition Audio Driver Setup (2.19)
Setup Status
Realtek High Definition Audio Driver is configuring your new software installation.
C:\Program Files\Realtek\InstallShield\KB888111w2ksp4.exe
InstallShield
Cancel

Figure 7-39: Audio Driver Software Configuration

Step 12: The Installation Wizard updates the system as shown in **Figure 7-40**.

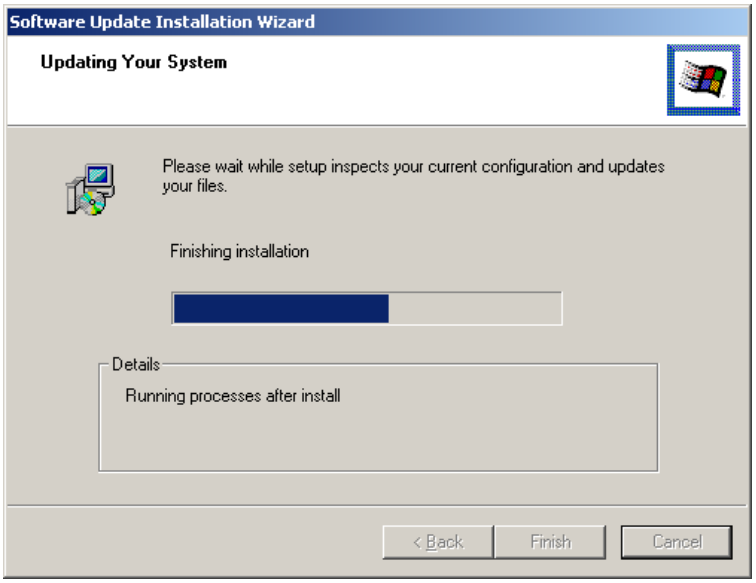


Figure 7-40: Installation Wizard Updates the System

Step 13: After the driver installation process is complete, a confirmation screen appears (**Figure 7-41**).

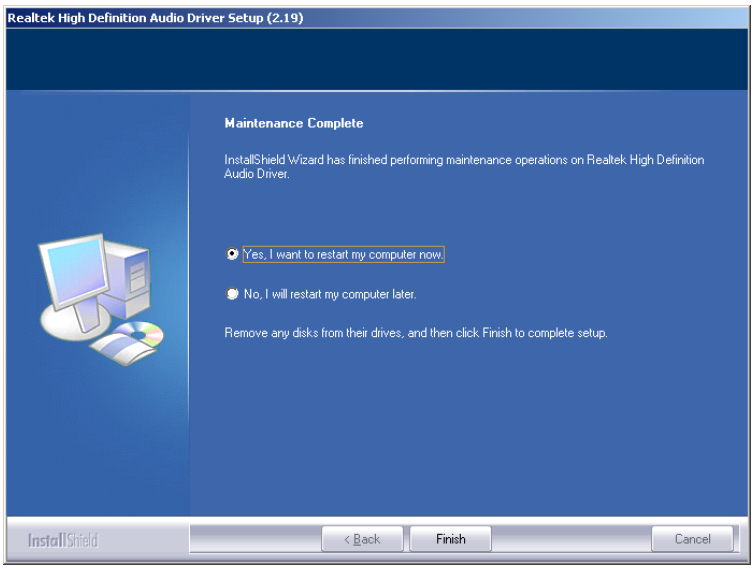

Realtek High Definition Audio Driver Setup (2.19)
Maintenance Complete
InstallShield Wizard has finished performing maintenance operations on Realtek High Definition Audio Driver.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
InstallShield
< Back
Finish
Cancel

Figure 7-41: Restart the Computer

Step 14: The confirmation screen offers the option of restarting the computer now or later. For the settings to take effect, the computer must be restarted. Click **FINISH** to restart the computer.

7.7 Intel® Matrix Storage Manager Driver Installation

To install the Intel® Matrix Storage Manager driver, please follow the steps below:

Step 1: Select **SATA** from the list in **Figure 7-2**.

Step 2: A new window opens (**Figure 7-42**).

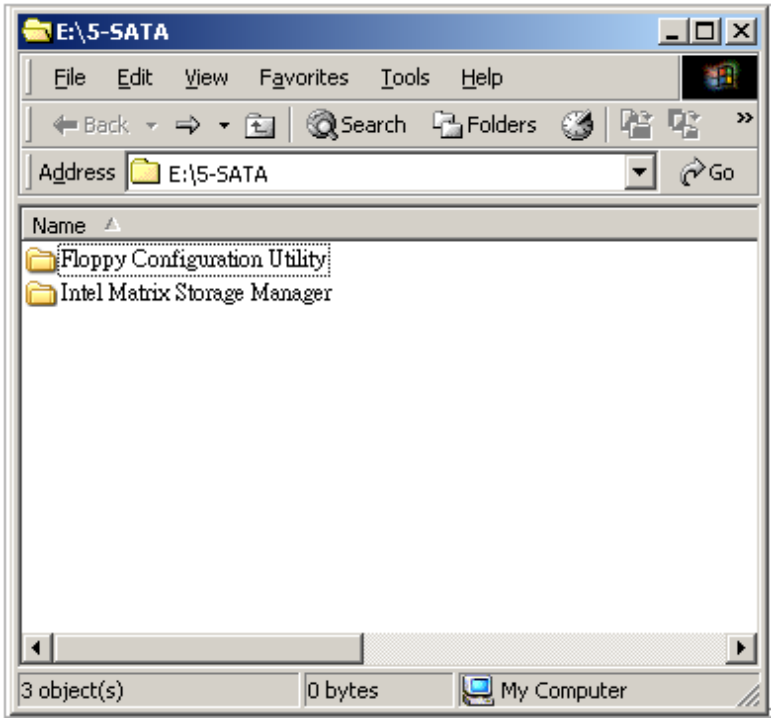


Figure 7-42: SATA RAID Driver Installation Program

Step 3: Double-click the **Intel Matrix Storage Manager** folder.

Step 4: Double-click the **iata75_cd.exe** program icon in **Figure 7-43**.

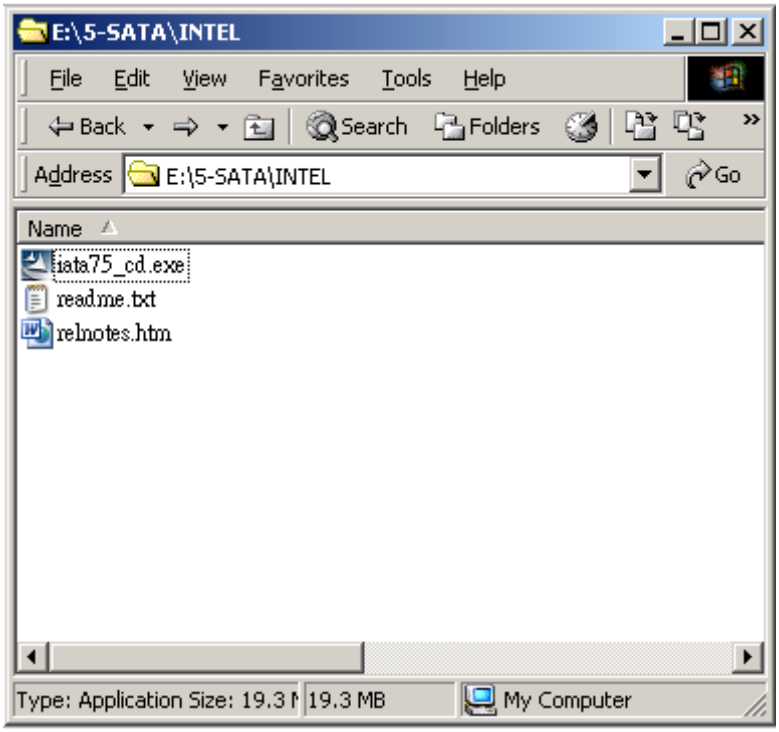


Figure 7-43: SATA RAID Setup Program Icon

Step 5: **Figure 7-44** shows the **InstallShield Wizard** preparing to guide the user through the rest of the process.

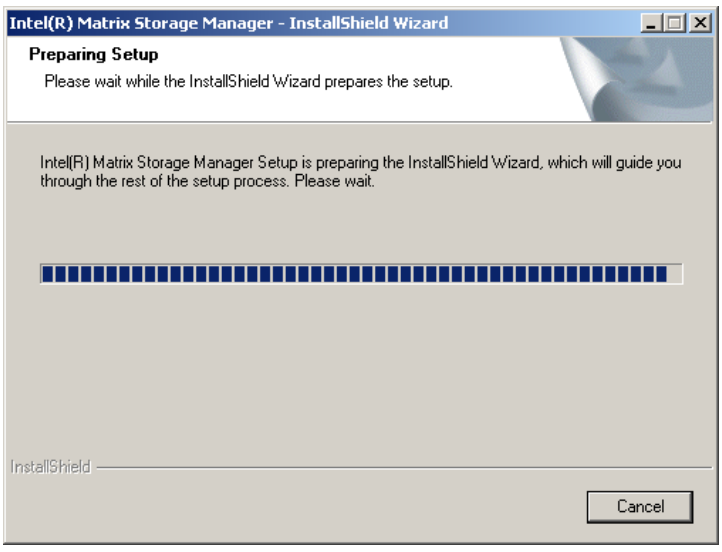

Intel(R) Matrix Storage Manager - InstallShield Wizard
Preparing Setup
Please wait while the InstallShield Wizard prepares the setup.
Intel(R) Matrix Storage Manager Setup is preparing the InstallShield Wizard, which will guide you through the rest of the setup process. Please wait.
InstallShield
Cancel

Figure 7-44: InstallShield Wizard Setup Screen

Step 6: **Figure 7-45** shows the **Matrix Storage Manager** software configuring the installation process.

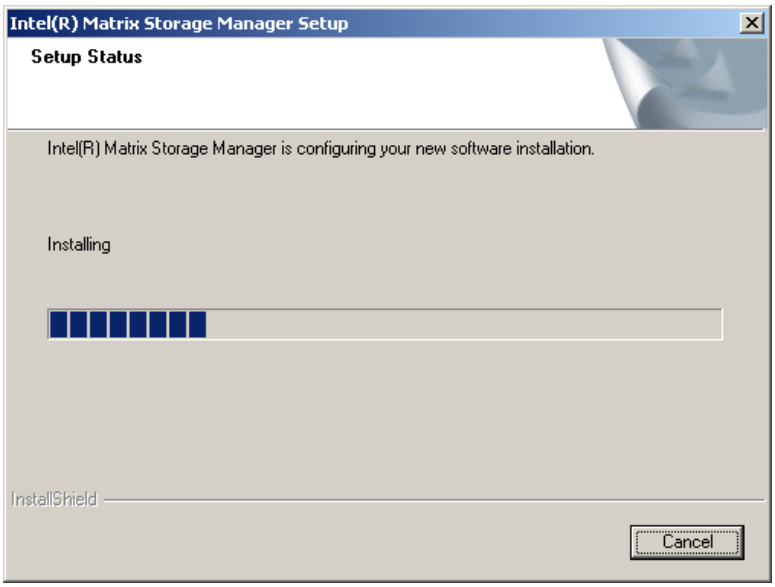


Figure 7-45: Matrix Storage Manager Setup Screen

Step 7: **Figure 7-46** shows the **Matrix Storage Manager** welcome screen.

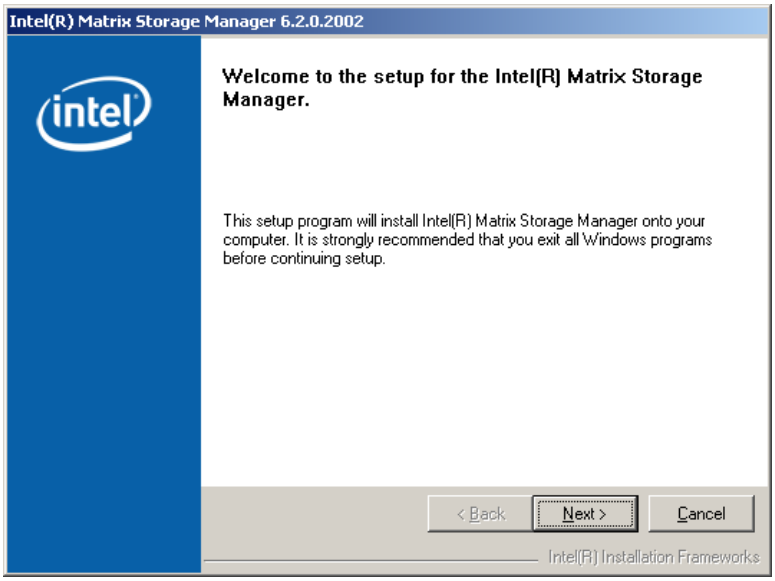

Intel(R) Matrix Storage Manager 6.2.0.2002
Welcome to the setup for the Intel(R) Matrix Storage Manager.
This setup program will install Intel(R) Matrix Storage Manager onto your computer. It is strongly recommended that you exit all Windows programs before continuing setup.
< Back
Next >
Cancel
Intel(R) Installation Frameworks

Figure 7-46: Matrix Storage Manager Welcome Screen

Step 8: Click **NEXT** and a warning appears (**Figure 7-47**). Read the warning carefully

and decide whether or not to continue the installation process.

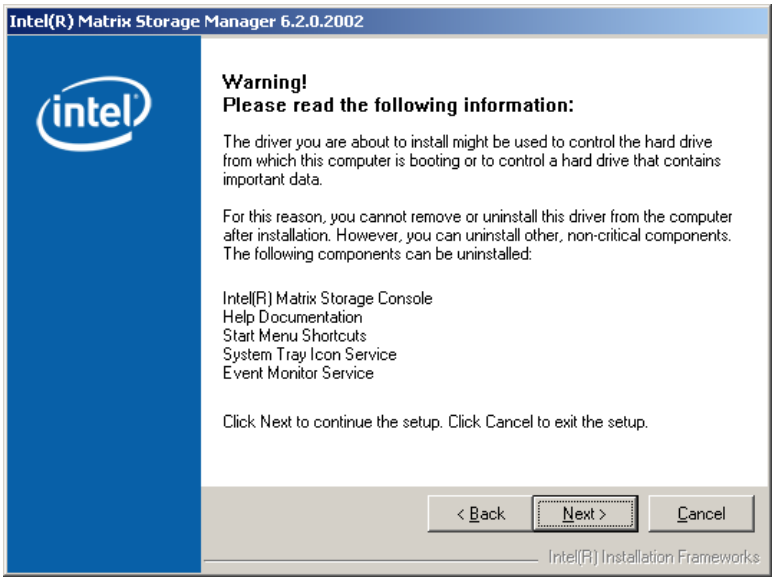

Intel(R) Matrix Storage Manager 6.2.0.2002
Warning!
Please read the following information:
The driver you are about to install might be used to control the hard drive from which this computer is booting or to control a hard drive that contains important data.
For this reason, you cannot remove or uninstall this driver from the computer after installation. However, you can uninstall other, non-critical components. The following components can be uninstalled:
Intel(R) Matrix Storage Console
Help Documentation
Start Menu Shortcuts
System Tray Icon Service
Event Monitor Service
Click Next to continue the setup. Click Cancel to exit the setup.
< Back
Next >
Cancel
Intel(R) Installation Frameworks

Figure 7-47: Matrix Storage Manager Warning Screen

Step 9: Click **NEXT** and a license agreement appears (**Figure 7-48**).

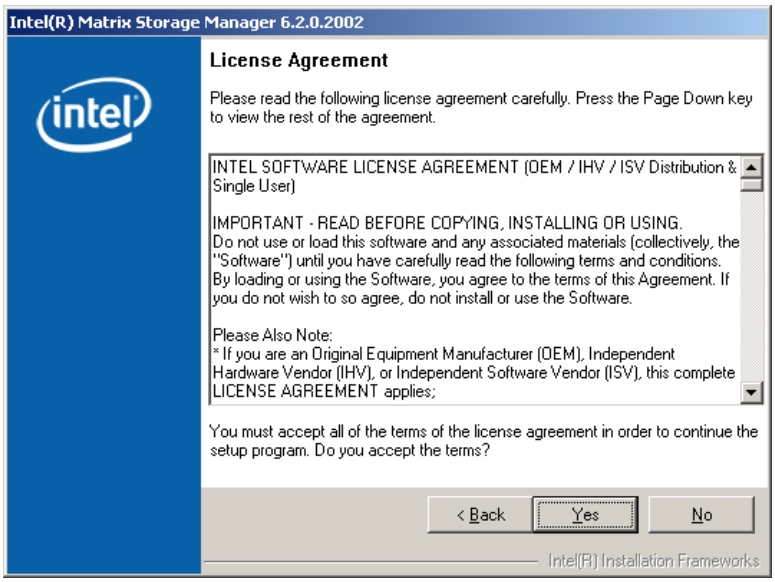

Intel(R) Matrix Storage Manager 6.2.0.2002
License Agreement
Please read the following license agreement carefully. Press the Page Down key to view the rest of the agreement.
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
< Back
Yes
No
Intel(R) Installation Frameworks

Figure 7-48: Matrix Storage Manager License Agreement

Step 10: Read the license agreement. To accept the terms and conditions stipulated in the license agreement shown, click **YES** and the Readme information file shown in **Figure 7-49** appears.

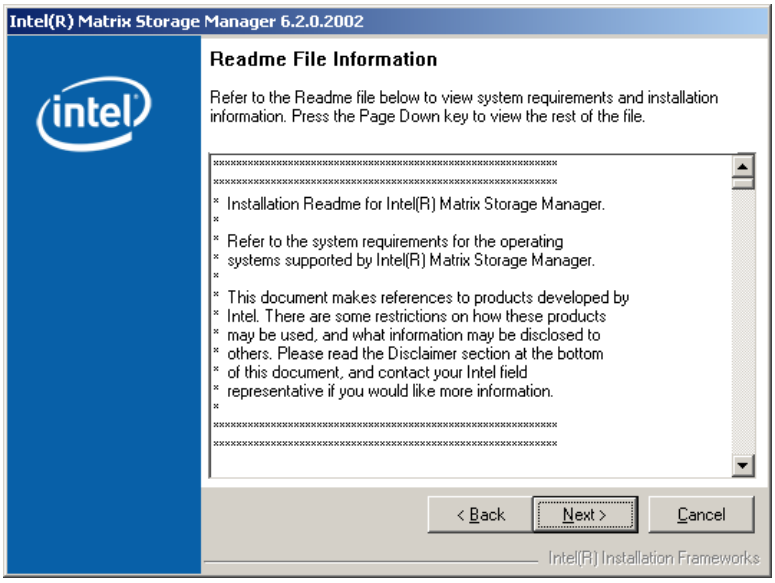

Intel(R) Matrix Storage Manager 6.2.0.2002
Readme File Information
Refer to the Readme file below to view system requirements and installation information. Press the Page Down key to view the rest of the file.
* Installation Readme for Intel(R) Matrix Storage Manager.
* Refer to the system requirements for the operating
* systems supported by Intel(R) Matrix Storage Manager.
* This document makes references to products developed by
* Intel. There are some restrictions on how these products
* may be used, and what information may be disclosed to
* others. Please read the Disclaimer section at the bottom
* of this document, and contact your Intel field
* representative if you would like more information.
< Back
Next >
Cancel
Intel(R) Installation Frameworks

Figure 7-49: Matrix Storage Manager Readme File

Step 11: Read the Readme file information and click **NEXT**.

Step 12: After the driver installation process is complete, a confirmation screen appears (**Figure 7-50**).

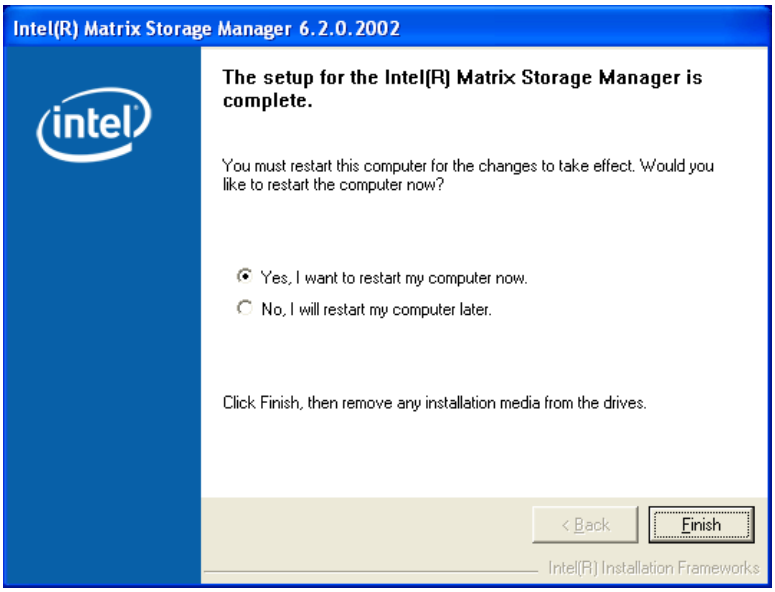

Intel(R) Matrix Storage Manager 6.2.0.2002
The setup for the Intel(R) Matrix Storage Manager is complete.
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart my computer now.
No, I will restart my computer later.
Click Finish, then remove any installation media from the drives.
< Back
Finish
Intel(R) Installation Frameworks

Figure 7-50: Matrix Storage Manager Setup Complete

Step 13: The confirmation screen offers the option of restarting the computer now or later.

For the settings to take effect, the computer must be restarted. Click **FINISH** to restart the computer.

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Appendix

A

BIOS Configuration Options

A.1 BIOS Configuration Options

Below is a list of BIOS configuration options described in **Chapter 6**.

System Overview **104**
System Time [xx:xx:xx] **105**
System Date [xx/xx/xx] **105**
ATA/IDE Configurations [Compatible] **108**
Legacy IDE Channels [SATA Pri, PATA Sec] **109**
IDE Master and IDE Slave **109**
Type [Auto] **110**
ZIP **111**
LS-120 ..... **111**
LBA/Large Mode [Auto] **111**
Block (Multi Sector Transfer) [Auto] **111**
PIO Mode [Auto] **112**
DMA Mode [Auto] **112**
S.M.A.R.T [Auto] **113**
32Bit Data Transfer [Enabled] **114**
Floppy A **115**
Serial Port1 Address [3F8/IRQ4] **116**
Serial Port1 Mode [Normal] **116**
Serial Port2 Address [2F8/IRQ3] **116**
Serial Port2 Mode [Normal] **117**
Parallel Port Address [378] **117**
Parallel Port Mode [Normal] **117**
Parallel Port IRQ [IRQ7] **118**
Remote Access [Disabled] **120**
Serial Port Number **121**
Serial Port Mode **121**
Redirection after BIOS POST **121**
Terminal Type **121**

Serial Port Number [COM1] 121
Base Address, IRQ [3F8h,4] 121
Serial Port Mode [115200 8,n,1] 121
Redirection After BIOS POST [Always] 122
Terminal Type [ANSI] 122
USB Configuration 123
USB Devices Enabled 123
USB Function [Enabled] 123
Legacy USB Support [Enabled] 124
USB2.0 Controller Mode [HiSpeed] 124
Hotplug USB FDD Support [Auto] 124
USB Mass Storage Reset Delay [20 Sec] 125
Device ## 126
Emulation Type [Auto] 126
Power Supply Mode [ATX] 128
IRQ# 129
DMA Channel# [Available] 129
Reserved Memory Size [Disabled] 130
Quick Boot [Enabled] 132
Quiet Boot [Enabled] 132
AddOn ROM Display Mode [Force BIOS] 132
Bootup Num-Lock [On] 133
Boot From LAN Support (82573L) [Disabled] 133
Change Supervisor Password 136
Change User Password 136
Memory Remap Feature [Enabled] 137
Memory Hole [Disabled] 138
Boots Graphics Adapter Priority [IGD] 138
Internal Graphics Mode Select [Enable, 8MB] 138
Boot Display Device [Auto] 139
Flat Panel Type [BY HARDWARE] 139

TV Standard [VBIOS-Default]..... 139
HDA Controller [Enabled] 140
Save Changes and Exit 141
Discard Changes and Exit 141
Discard Changes..... 142
Load Optimal Defaults..... 142
Load Failsafe Defaults..... 142

Appendix

B

Terminology

AC ’97	Audio Codec 97 (AC’97) refers to a codec standard developed by Intel® in 1997.
ACPI	Advanced Configuration and Power Interface (ACPI) is an OS-directed configuration, power management, and thermal management interface.
AHCI	Advanced Host Controller Interface (AHCI) is a SATA Host controller register-level interface.
ATA	The Advanced Technology Attachment (ATA) interface connects storage devices including hard disks and CD-ROM drives to a computer.
APM	The Advanced Power Management (APM) application program interface (API) enables the inclusion of power management in the BIOS.
ARMD	An ATAPI Removable Media Device (ARMD) is any ATAPI device that supports removable media, besides CD and DVD drives.
ASKIR	Amplitude Shift Keyed Infrared (ASKIR) is a form of modulation that represents a digital signal by varying the amplitude (“volume”) of the signal. A low amplitude signal represents a binary 0, while a high amplitude signal represents a binary 1.
BIOS	The Basic Input/Output System (BIOS) is firmware that is first run when the computer is turned on and can be configured by the end user
CODEC	The Compressor-Decompressor (CODEC) encodes and decodes digital audio data on the system.
CompactFlash®	CompactFlash® is a solid-state storage device. CompactFlash® devices use flash memory in a standard size enclosure. Type II is thicker than Type I, but a Type II slot can support both types.
CMOS	Complimentary metal-oxide-conductor is an integrated circuit used in chips like static RAM and microprocessors.

COM	COM refers to serial ports. Serial ports offer serial communication to expansion devices. The serial port on a personal computer is usually a male DB-9 connector.
DAC	The Digital-to-Analog Converter (DAC) converts digital signals to analog signals.
DDR	Double Data Rate refers to a data bus transferring data on both the rising and falling edges of the clock signal.
DMA	Direct Memory Access (DMA) enables some peripheral devices to bypass the system processor and communicate directly with the system memory.
DIMM	Dual Inline Memory Modules are a type of RAM that offer a 64-bit data bus and have separate electrical contacts on each side of the module.
DIO	The digital inputs and digital outputs are general control signals that control the on/off circuit of external devices or TTL devices. Data can be read or written to the selected address to enable the DIO functions.
EHCI	The Enhanced Host Controller Interface (EHCI) specification is a register-level interface description for USB 2.0 Host Controllers.
FSB	The Front Side Bus (FSB) is the bi-directional communication channel between the processor and the Northbridge chipset.
GbE	Gigabit Ethernet (GbE) is an Ethernet version that transfers data at 1.0 Gbps and complies with the IEEE 802.3-2005 standard.
GPIO	General purpose input
HDD	Hard disk drive (HDD) is a type of magnetic, non-volatile computer storage device that stores digitally encoded data.
ICH	The Input/Ouput Controll Hub (ICH) is an Intel® Southbridge chipset.
IrDA	Infrared Data Association (IrDA) specify infrared data transmission

	protocols used to enable electronic devices to wirelessly communicate with each other.
L1 Cache	The Level 1 Cache (L1 Cache) is a small memory cache built into the system processor.
L2 Cache	The Level 2 Cache (L2 Cache) is an external processor memory cache.
LCD	Liquid crystal display (LCD) is a flat, low-power display device that consists of two polarizing plates with a liquid crystal panel in between.
LVDS	Low-voltage differential signaling (LVDS) is a dual-wire, high-speed differential electrical signaling system commonly used to connect LCD displays to a computer.
MAC	The Media Access Control (MAC) protocol enables several terminals or network nodes to communicate in a LAN, or other multipoint networks.
PCIe	PCI Express (PCIe) is a communications bus that uses dual data lines for full-duplex (two-way) serial (point-to-point) communications between the SBC components and/or expansion cards and the SBC chipsets. Each line has a 2.5 Gbps data transmission rate and a 250 MBps sustained data transfer rate.
POST	The Power-on Self Test (POST) is the pre-boot actions the system performs when the system is turned-on.
RAM	Random Access Memory (RAM) is volatile memory that loses data when power is lost. RAM has very fast data transfer rates compared to other storage like hard drives.
SATA	Serial ATA (SATA) is a serial communications bus designed for data transfers between storage devices and the computer chipsets. The SATA bus has transfer speeds up to 1.5 Gbps and the SATA II bus has data transfer speeds of up to 3.0 Gbps.
S.M.A.R.T	Self Monitoring Analysis and Reporting Technology (S.M.A.R.T) refers

	to automatic status checking technology implemented on hard disk drives.
UART	Universal Asynchronous Receiver-transmitter (UART) is responsible for asynchronous communications on the system and manages the system's serial communication (COM) ports.
UHCI	The Universal Host Controller Interface (UHCI) specification is a register-level interface description for USB 1.1 Host Controllers.
USB	The Universal Serial Bus (USB) is an external bus standard for interfacing devices. USB 1.1 supports 12Mbps data transfer rates, while USB 2.0 supports 480Mbps data transfer rates.
VGA	The Video Graphics Array (VGA) is a graphics display system developed by IBM.

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Appendix

C

DIO Interface

C.1 DIO Interface Introduction

The DIO connector on the PCISA-9652 is interfaced to GPIO ports on the IT8712F Super I/O chipset. The DIO has both 4-bit digital inputs and 4-bit digital outputs. The digital inputs and digital outputs are generally control signals that control the on/off circuit of external devices or TTL devices. Data can be read or written to the selected address to enable the DIO functions.

NOTE:

For further information, please refer to the datasheet for the IT8712F Super I/O chipset.

C.2 DIO Connector Pinouts

The following table describes how the DIO connector pins are connected to the Super I/O GPIO port 1.

Pin	Description	Super I/O Pin	Super I/O Pin Description
1	Ground	N/A	N/A
2	VCC	N/A	N/A
3	Output 3	GP27	General purpose I/O port 2 bit 7.
4	Output 2	GP26	General purpose I/O port 2 bit 6.
5	Output 1	GP25	General purpose I/O port 2 bit 5.
6	Output 0	GP24	General purpose I/O port 2 bit 4.
7	Input 3	GP23	General purpose I/O port 2 bit 3.
8	Input 2	GP22	General purpose I/O port 2 bit 2
9	Input 1	GP21	General purpose I/O port 2 bit 1
10	Input 0	GP20	General purpose I/O port 2 bit 0

C.3 Assembly Language Samples

C.3.1 Enable the DIO Input Function

The BIOS interrupt call INT 15H controls the digital I/O. An assembly program to enable digital I/O input functions is listed below.

```
MOV     AX, 6F08H     Sets the digital port as input
INT     15H           Initiates the INT 15H BIOS call
```

C.3.2 Enable the DIO Output Function

The BIOS interrupt call INT 15H controls the digital I/O. An assembly program to enable digital I/O output functions is listed below.

```
MOV     AX, 6F09H     Sets the digital port as output
MOV     BL, 09H
INT     15H           Initiates the INT 15H BIOS call
```

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Appendix

D

Watchdog Timer

NOTE:

The following discussion applies to DOS environment. IEI support is contacted or the IEI website visited for specific drivers for more sophisticated operating systems, e.g., Windows and Linux.

The Watchdog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that cause the CPU to crash. This condition may have occurred by external EMI or a software bug. When the CPU stops working correctly, Watchdog Timer either performs a hardware reset (cold boot) or a Non-Maskable Interrupt (NMI) to bring the system back to a known state.

A BIOS function call (INT 15H) is used to control the Watchdog Timer:

INT 15H:

AH – 6FH Sub-function:	
AL – 2:	Sets the Watchdog Timer's period.
BL:	Time-out value (Its unit-second is dependent on the item "Watchdog Timer unit select" in CMOS setup).

Table D-1: AH-6FH Sub-function

Call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer starts counting down. While the timer value reaches zero, the system resets. To ensure that this reset condition does not occur, calling sub-function 2 must periodically refresh the Watchdog Timer. However, the Watchdog timer is disabled if the time-out value is set to zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.

NOTE:

When exiting a program it is necessary to disable the Watchdog Timer, otherwise the system resets.

Example program:

```
; INITIAL TIMER PERIOD COUNTER
;
W_LOOP:

        MOV     AX, 6F02H       ;setting the time-out value
        MOV     BL, 30          ;time-out value is 48 seconds
        INT      15H
 ;
; ADD THE APPLICATION PROGRAM HERE
;
        CMP      EXIT_AP, 1     ;is the application over?
        JNE      W_LOOP         ;No, restart the application

        MOV     AX, 6F02H       ;disable Watchdog Timer
        MOV     BL, 0           ;
        INT      15H
;
; EXIT ;
```

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Appendix

E

Address Mapping

E.1 IO Address Map

I/O address Range	Description
000-01F	DMA Controller
020-021	Interrupt Controller
040-043	System time
060-06F	Keyboard Controller
070-07F	System CMOS/Real time Clock
080-09F	DMA Controller
0A0-0A1	Interrupt Controller
0C0-0DF	DMA Controller
0F0-0FF	Numeric data processor
1F0-1F7	Primary IDE Channel
2E8-2EF	Serial Port 4 (COM4)
2F8-2FF	Serial Port 2 (COM2)
378-37F	Parallel Printer Port 1 (LPT1)
3B0-3BB	Intel GME965 Graphics Controller
3C0-3DF	Intel GME965 Graphics Controller
3E8-3EF	Serial Port 3 (COM3)
3F6-3F6	Primary IDE Channel
3F7-3F7	Standard floppy disk controller
3F8-3FF	Serial Port 1 (COM1)

Table E-1: IO Address Map

E.2 1st MB Memory Address Map

Memory address	Description
00000-9FFFF	System memory
A0000-BFFFF	VGA buffer
F0000-FFFFF	System BIOS
1000000-	Extend BIOS

Table E-2: 1st MB Memory Address Map

E.3 IRQ Mapping Table

IRQ	Description	IRQ	Description
IRQ0	System Timer	IRQ8	RTC clock
IRQ1	Keyboard	IRQ9	ACPI
IRQ2	Available	IRQ10	COM 4
IRQ3	COM2	IRQ11	COM 3
IRQ4	COM1	IRQ12	PS/2 mouse
IRQ5	SMBus Controller	IRQ13	FPU
IRQ6	FDC	IRQ14	Primary IDE
IRQ7	Parallel port	IRQ15	Secondary IDE

Table E-3: IRQ Mapping Table

E.4 DMA Channel Assignments

Channel	Function
0	Available
1	Available
2	Floppy disk (8-bit transfer)
3	Available
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available

Table E-4: DMA Channel Assignments

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Appendix

F

Compatibility

NOTE:

The compatible items described here have been tested by the IEI R&D team and found to be compatible with the PCISA-9652.

F.1 Compatible Processors

The following Socket 478 processors have been successfully tested on the PCISA-9652.

CPU	Model Number	Frequency	FSB
Intel® Core™2 Duo	T7500	2.20 GHz	800 MHz
Intel® Core™2 Duo	T7300	2.00 GHz	800 MHz
Intel® Core™2 Duo	T7100	1.80 GHz	800 MHz
Intel® Celeron®	550	2.00 GHz	533 MHz
Intel® Celeron®	540	1.86 GHz	533 MHz

F.2 Compatible Memory Modules

NOTE:

The memory modules listed below have been tested on the PCISA-9652 other memory modules that comply with the specifications may also work on the PCISA-9652 but have not been tested.

The following memory modules have been successfully tested on the PCISA-9652.

Manufacturer	Model No.	Capacity	Speed
Kingston	KHX6400D2/2G	1 GB	800 MHz
Kingston	KVR667D2N5/512	512 MB	667 MHz

KingBOX	DDR2 512MB 667MHz	512 MB	667 MHz
UNIGEN	UG12T6400L8DU-5AM	1 GB	533 MHz
Transcend	1GB DDR2 533	1 GB	533 MHz
Transcend	1GB DDR2 667	1 GB	667 MHz
Transcend	2GB DDR2 800	2 GB	800 MHz
Apacer	2GB UNB PC2-6400 CL5	2 GB	800 MHz
Apacer	1GB UNB PC2-4300 CL4	1 GB	533 MHz
UMAX	RMUMX 512DDR533C	512 MB	533 MHz
DSL	512MB DDR2 667MHz CL5	512 MB	667 MHz
DSL	1GB DDR2 533MHz CL4	1 GB	533 MHz

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Appendix

G

Hazardous Materials Disclosure

G.1 Hazardous Material Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC Without Mercury

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table on the next page.

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	x	O	O	O	O	x
Display	X	O	O	O	O	X
Printed Circuit Board	X	O	O	O	O	X
Metal Fasteners	X	O	O	O	O	O
Cable Assembly	X	O	O	O	O	X
Fan Assembly	X	O	O	O	O	X
Power Supply Assemblies	X	O	O	O	O	X
Battery	O	O	O	O	O	O

O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006

X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有"环境友好使用期限"的标签，此期限是估算这些物质"不会有泄漏或突变"的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	X	O	O	O	O	X
显示	X	O	O	O	O	X
印刷电路板	X	O	O	O	O	X
金属螺帽	X	O	O	O	O	O
电缆组装	X	O	O	O	O	X
风扇组装	X	O	O	O	O	X
电力供应组装	X	O	O	O	O	X
电池	O	O	O	O	O	O

O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。

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